FACULTY OF DENTISTRY LIBRARY
UNIVERSITY OF TORONTO
3 1761 03919885 8

Digitized by the Internet Archive
in 2025 with funding from
University of Toronto

https://archive.org/details/31761039198858

AAY13B

uly
uillet
992
ol. 58
o. 7

JOURNAL

anadian
ental
ssociation

'Association
entaire
anadienne

B
JAN 25

undeliverable
Addressee
ETURN TO SENDER
eturn Postage
uaranteed

non livrable
destinataire
ETOURNER À
EXPÉDITEUR
ort Payé

DENTAL LIBRARY
UNIVERSITY OF TORONTO
124 EDWARD ST.
TORONTO M5G 1G6
ONTARIO, CANADA

UNIVERSITY OF TORONTO 13
FACULTY OF DENTISTRY LIBRARY
124 EDWARD ST
TORONTO, ON
M5G 1G6

▲ Implant Dentistry

▲ Les implants dentaires

The Equity Program. It can make your practice perfect.

Ash Temple's Equity Program is a comprehensive product delivery and service program that can streamline your office and simplify your business life by saving you time and money.

Especially designed for the busy professional, Ash Temple's Equity Program offers:

Flexibility-set up a convenient schedule for delivery of supplies and equipment. Select from a variety of payment options and avoid unwieldy commitments.

Economy-take advantage of our buying power: competitive prices, volume discounts, and most favoured repair labour rates. As your spending reaches a specific level, our advantageous rebate program provides remittances back to you in the form of cheques, travel vouchers, no-charge dental supplies or repair services. Annual contract pricing is also available.

Service-select reliable equipment from the world's leading manufacturers, with preventative repair services or maintenance as needed.

Take advantage of our inventory of over 100,000 sundry items in 14 stocking locations.

Join the Ash Temple Equity program today. Just call your Ash Temple Sales Representative and find out how perfect practice can be.

Ash Temple

Keeping you a step ahead.

July 1992

JOURNAL

JOURNAL STAFF

Executive Director
A. Jardine Neilson

Editor
Dr. P. Ralph Crawford

Managing Editor
Terence Davis

Assistant Editor, Art Director
Louise Després Jones

Assistant Editor, Production
Antonia Papadakou

Scientific Editor (English)
Dr. Robert S. Turnbull

Scientific Editor (French)
Dr. Pierre C. Desautels

CONSULTING EDITORS

Anesthesiology
Dr. Earle Young

Dental Materials
Dr. Peter T. Williams

Medicine
Dr. George K.B. Sandor

Forensic Dentistry
Dr. Robert Dorion

Infection Control
Dr. John Hardie

Pharmacology
Dr. David M. Paton

Practice Management
Dr. Bob Brandon

Nutrition
Mrs. Nina Burgess

Canadian Dental Hygienists Association
Ms. Carole Worobey

Canadian Dental Assistants Association
Ms. Diane Pike

SPECIALTY EDITORS

Endodontics
Dr. W.H. (Bill) Christie

Oral Maxillofacial Surgery
Dr. David S. Precious

Oral Pathology
Dr. J.H.P. Main

Orthodontics
Dr. K.E. Glover

Pedodontics
Dr. Victor Legault

Periodontics
Dr. James E. (Jim) Stakiw

Prosthodontics
Dr. Michael MacEntee

Public Health
Dr. Donald Lewis

Radiology
Dr. Colin Price

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa, Ont.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds. In Canada - $48 (+ GST); United States - $53; all other - $58. Subscriptions are for 12 issues, not necessarily conforming with the calendar year. All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the *Journal*. Publication of an advertisement does not necessarily imply that the Canadian Dental Association agrees with or supports the claims therein.

ISSN 0709 8936

PRINTED IN CANADA

Call CDA for information and assistance toll-free at:

1-800-267-6354

CDA FAX Nos: 1-613-523-7736
1-613-523-5891

All matters pertaining to advertising should be directed to:

Keith Health Care Communications
1382 Hurontario Street
Mississauga, Ont. L5G 3H4
ATTN: Trish Sullivan
Advertising Representative,
or, Ola Murphy
CDA Access Representative

Tel: (416) 278-6700
Fax: (416) 278-4850

Member

American Dental Editors' Association
Canadian Circulations Audit Board

CDA MISSION STATEMENT

The Canadian Dental Association is the authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada, — dedicated to meeting member needs, and the promotion and provision of optimal oral health for Canadians.

The Journal of the Canadian Dental Association is published in both official languages except scientific articles which are published in the language in which they are received. Readers may request the Journal in the language of their choice.

CDA EXECUTIVE COUNCIL

President
Dr. L.S. Allen
Winnipeg, Manitoba

President-Elect
Dr. B. Dolansky
Ottawa, Ontario

Vice-President
Dr. R. Wenn
Charlottetown, P.E.I.

Dr. J. Brookfield
Kirkland Lake, Ontario

Dr. B. Dolman
Montréal, Québec

Dr. B. Sigfstead
Edmonton, Alberta

Dr. R. Smith
Duncan, B.C.

Dr. T. Gushue
St. John 's, Nfld.

Dr. B.E. White
Saskatoon, Saskatchewan

CDA STAFF

1815 Alta Vista Drive,
Ottawa, Ontario KlG 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Executive Director
A. Jardine Neilson

Manager, Executive Services
Sandra Déziel

Coordinator, Board and Executive
Suzanne Burton

PROFESSIONAL SERVICES

Director, Education and Accreditation and Professional Services
Brian Henderson

Associate Director, Education and Accreditation
Susan Matheson

Coordinator, Accreditation
Gay MacQuarrie

Coordinator, DAT
Danuta Askew

Coordinator, Purchaser Information Program
Coordinator, CDAnet
Patricia Duminy

ADMINISTRATION

Director of Administration
Joel R. Neal

Business Manager
Shelagh Dunlop

Accountant
Joan Kerwin

Membership Secretary
Lydia Allison

COMMUNICATIONS

Director of Communications
Linda Teteruck

Librarian
Martha Vaughan

Information Officer
Lisa Burke

THE FIRST DIRECT CERAMIC "INLAY" FOR IN-MOUTH COMPOSITE FILLING

Visit us at the 1992
CDA Convention
Booths #202 - 311

Beta Quartz GLASS–CERAMIC INSERT

The strength of amalgam, the esthetics of porcelain. In one simple direct in-mouth procedure.

Clinically Superior: 5–year recall!

- 15 years of Independent Studies prove Beta-Quartz Inserts minimize marginal contraction gaps which may result in micro-leakage in composite restorations – 7 times lower thermal expansion than amalgam and 50–75% reduction in composite polymerization shrinkage. [1, 2]
- Beta-Quartz Inserts are shown to improve support of tooth structure and contour, minimize wear and reduce risk of micro-fracture in high stress contact areas–unprecedented compressive strength of 490 MPa & surface hardness of 664 kg/mm^2. [1, 3]
- 5-Year Recall shows no sign of physical degradation or loss of esthetics. Biocompatible. X-ray opaque.

No Impression Taking: Time Saving!

- Preformed after rotary instruments in standard shapes and sizes for easy fitting in Class I, II, and III restorations.
- Pre-Silane treated for immediate in-mouth insertion into composites with shear bond strength of 25 MPa. Easy finishing and polishing in 2 minutes. [1, 4]

Porcelain Appearance: Smooth Finish!

- The translucency of Beta-Quartz conducts and scatters the light to match the natural color of the tooth crown.
- The unique microcrystalline properties of glass-ceramic allow for a smooth finish without surface flaws.

Made in U.S.A.
Manufactured under License under one or more U.S. Patent No. 4,744,759 and other Foreign Patents Pending.

Lee®
PHARMACEUTICALS USA

INSTRUCTIONAL VIDEO NOW AVAILABLE

For further information or to place your order contact:

Cerum Dental Supplies Ltd. — Toll Free 1-800-661-9567

Exclusive Distributor in Canada

References: 1. Eichmiller F. "Technical characteristics and mechanical properties of Beta-Quartz Glass-Ceramic Inserts". Paffenberger Research Center, American Dental Association Health Foundation. 2. Bowen RL. "Reduction of microleakage around composite restorations" (Abstract 1117). J Dental Res 1987; 66-246. 3. Winnert LA, Bowen RL. "Heat treatment effects on hardness of a Beta Quartz glass ceramic insert" (Abstract 1746). IADR 1991. 4. Donly KJ, Ellis RK. "Glass Inserts, a new dimension in restorative dentistry". Am J Dent 1989; 1-21-4. University of Texas, Houston.

JOURNAL
Canadian Dental Association
L'Association dentaire canadienne

July 1992 Vol. 58 No. 7

Interview

Implant Dentistry: A Conversation with George Zarb 555 P. Ralph Crawford, BA, DMD

Clinical Features

Surgical Correction for Esthetic Problems Associated with Dental Implants 561 C.G. Ibbott, DMD, FRCD(C); R.J. Kovach, DMD; L.D. Carlson-Mann, SDT, RDH

Osseointegrated Implants for Stabilization of the Partially Edentulous Patient 563 Keith H. Compton, B.Sc., DDS, MS

Specialty Features

Titanium – The Metal of the Gods 568 P. Ralph Crawford, BA, DMD

Infection Control

A 1992 Update on Hepatitis B Vaccination 569 John Hardie, BDS, M.Sc., FRCD(C)

Scientific

Prosthodontic rehabilitation of a patient with mucormycosis 571 R.D. Mazurat, B.Sc., DDS; Barry M. Goldman, DDS, MS

Treatment of anterior cross-bites in the early mixed dentition 574 Paul W. Major, DDS, M.Sc., MRCD(C); Kenneth Glover, B.Sc., DDS, MSD, MRCD(C)

Dental anxiety: differentiation, identification and behavioral management 580 Arthur A. Weiner, DMD, FACD, FAGD

Cover: Design by Louise Després Jones

Departments

519 Letters to the Editor
522 Announcements
523 Editorial
525 President's Column
527 News Update
531 Instructions to Contributors
532 Library
535 Practice Management & Success
537 Book Reviews
539 CDA Convention
551 CDSPI Reports
586 CDA Access Ads
589 Advertisers' Index
590 It's My Opinion

"I'm comfortable with CDAnet because dentistry is in complete control. That ensures that my claim data is private and secure."

Dr. Gary Hyman
Winnipeg, Manitoba

CDAnet...
A REVOLUTIONARY ADVANCE IN CLAIMS PROCESSING

CDAnet is now at work in hundreds of dental offices across Canada. And it is delivering on its promises: speedy claims processing, quick claims payment, and satisfied patients.

CDAnet – a revolutionary advance in claims processing.

Get it working for you.

For more information call:
1-800-267-9701.

CDAnet™
Dentistry's National Information Network

Letters

■ Handpiece Sterilization

This is the best article about infection control that I have read, and, furthermore, it makes sense (Hardie, J. Concerns Regarding Infection Control Recommendations for Dental Practice. *J Canad Dent Assoc* 58(5):377-386, 1992).
T. Tarmet, DDS
Mississauga, ON

■ As a keen advocate of sterilization of all instruments, a protocol required by all health care authorities, I am appalled that the *Journal* does not consider the dental handpiece worthy of inclusion in this category.

Dr. John Hardie's article, Infectious or not? The Handpiece Controversy (*J Canad Dent Assoc* 58(4):281-2, 1992), tends to look at the contaminated handpiece as not requiring sterilization and indicates that disinfection could be adequate.

Too much emphasis is placed on the lack of microbiological research included in the Lewis and Boe dye study, which shows that solutions in handpieces are dispersed outside the handpiece. The statement is also made that Dr. Lewis does not have a dental degree. Dr. Lewis has a non-dental PhD, is employed as a research microbiologist with the Environmental Protection Agency (EPA), and has an interest in handpiece contamination.

A used handpiece is contaminated and the internal contents do not disappear. It is not only HIV and HBV contamination that is the concern. It is the microbial oral milieu that is our working environment, and it is the prevention of cross-contamination that is the goal.

At a time when dentists should be sterilizing handpieces, this article diverts their attention from the matter and tends to delay further motivation.

It is unusual to take this stance at a time when such bodies as the Washington State Department of Health are making it mandatory that all handpieces be sterilized "every patient, every time."
R.A. Clappison, DDS, FRCD(C)
Toronto, Ontario

■ I am surprised that the *Journal* published Dr. John Hardie's "cheap shot" at undermining the credibility of Dr. Lewis's observations and speculations concerning the need for handpiece sterilization (Hardie, J. Infectious or not? The Handpiece Controversy. *J Canad Dent Assoc* 58(4):281-2, 1992).

Just because a person has not earned a degree in dentistry does not mean that his or her viewpoint shouldn't merit objective consideration. Remember that the late Ralph Phillips, who contributed so much to the science of dental materials, did not hold a dental degree.

No doubt the *Journal of the Canadian Dental Association* considers Dr. Hardie an "expert" in the field of infection control (even though he does not appear to hold a medical degree specializing in infectious diseases). Unfortunately, I find that while Dr. Hardie's education may be "adequate," the format and tabloid-style writing of this recent article (specifically the personal comments and criticisms) detracted from the quality that I have come to expect from the *Journal*.

Please discontinue my subscription. I do not wish to waste my time reading any similar "scientific" reviews that rely on personal attack to gain support for their argument.

A good literary review does not need "cheap shots" at its opponents in order to become credible. Criticism ought to be confined to research methodology and protocol in order to make a point.
Paul Gregory, DMD, BSA.
Winnipeg, Manitoba.

Editor's Note

I am disappointed that Dr. Gregory wishes to cancel his subscription. We certainly hope that he doesn't cancel his subscription to every publication that occasionally prints a story he finds objectionable.

Dr. Hardie's Response

Dr. Clappison is incorrect in his assertion that all health care authorities require the sterilization of all instruments. Most, including the Centers for Disease Control (CDC), follow the scientific principles regarding the requirement for sterilization and/or disinfection articulated by Spaulding in 1967. These principles divide instruments into three categories – critical, semi-critical and non-critical. Only the critical group, i.e. those which invade into sterile tissue or the vascular supply, must be sterile. It is my contention that in restorative dentistry – especially when rubber dam is used – the dental handpiece is not an invasive surgical instrument. In this context, enamel and dentin are not the equivalent of the sterile subcutaneous tissues or internal organs.

It is inconceivable that Dr. Clappison would wish to de-emphasize the lack of microbiologic research in the Lewis and Boe study. Perhaps he believes that infectious diseases occur without pathogens, or has he forgotten the Henle-Koch postulates regarding infectious microorganisms?

Drs. Clappison and Gregory have taken offence to my statement that Dr. Lewis does not appear to have a dental degree. This statement's intent was to emphasize the fact that, according to his own admission, Dr. Lewis's opinions on the infection control practises of dentists were based on his studies of dental offices and the anecdotal reports of dental salespersons. I am not prepared to accept that such opinions were free of personal bias or commercial interests.

Neither Dr. Clappison nor the Washington State Department of Health have provided scientific data to support the contention that handpieces must be sterilized. The recent television stories purporting to establish a link between HIV transmission and dental handpieces lacked scientific and clinical credibility. They failed to duplicate the diluting effect of the handpiece water supply and high-speed suction, assumed that red blood cells and inorganic debris spread disease, and did not follow current CDA recommendations for handpiece disinfection. The television stories validated the "Florida case" when, in fact, an HIV transmission from Dr. Acer (or his practice) to one or more patients remains unproven. They accepted as true the assertions of patients as to how their HIV infections were acquired without any medical or public health corroboration.

I suspect that the media hyperbole surrounding AIDS has become accepted as fact, and that such dogma is control-

ling current infection control practises. Accordingly, until properly controlled epidemiologic surveys and clinical investigations go beyond merely reiterating that a potential for cross-contamination exists, I will continue to believe that present infection control policies are being driven by perception and political expediency rather than by reality.
J. Hardie, BDS, M.Sc., FRCDC, FICDC
Vancouver, B.C.

■ All Canadian dentists and dental office personnel should be deeply grateful to Dr. John Hardie for his very thorough and sensible review of infection control/AIDS issues, published in the *CDA Journal* in both April (Hardie, J. Infectious or not? The Handpiece Controversy. *J Canad Dent Assoc* 58(4):281-2, 1992) and May (Hardie, J. Concerns Regarding Infection Control Recommendations for Dental Practice. *J Canad Dent Assoc* 58(5):377-386, 1992).

Having had 10 years of hands-on laboratory experience in oral microbiology, I've developed a firm respect for contamination control in both clinical and laboratory settings. However, I have found that it can be most exasperating to discuss realistic levels of infection control procedures with dental patients and health personnel when extreme overstatement and near hysteria predominate in the popular media.

In order to inject a little more thoughtfulness on the part of some individuals, I have tried to paint the following picture of a hypothetical situation in the dental office. A dental patient in a waiting room suddenly lets out a tremendous sneeze, obviously covering the entire room with aerosol before being able to stifle the outburst. Should we, as dentists, be required to install ultraviolet lights on our ceilings to kill such possible airborne microbes? Is this much different from the amount or type of aerosol that might be encountered intraorally with operating handpieces? Without wishing to alarm anyone, what about the similar possibility of aerosol contact at food outlets such as, for example, salad bars, ice cream parlors, and innumerable hamburger stands? Just bring up those everyday possibilities if you want to make someone pause for thought.

Both the medical and dental community would benefit if more people took Dr. Hardie's collected, reasonable approach to such matters. We should all hope that he continues with his very meaningful papers on these topics.
Tom E. Balanyk, DDS, DDPH, M.Sc.
Toronto, Ontario

■ I enjoyed Dr. John Hardie's well-reasoned analysis of the notion that the dental handpiece functions as a vector in HIV and HBV transmission. As far as the Lewis and Boe study is concerned, it appears that its authors are less than familiar with the construction and function of a modern handpiece, especially the high-speed handpiece.

I am annoyed that so many of our brethren accept without questioning (and often without thinking) the validity of the advertising claims made by the suppliers of the disposables, or the "scientific" studies like the one Dr. Hardie mentioned in his article.
V. Bazant, DDS
Saskatoon, Sask.

■ I wish to congratulate Dr. John Hardie on a terrific article (Hardie, J. Concerns Regarding Infection Control Recommendations for Dental Practice. *J Canad Dent Assoc* 58(5):377-386, 1992). It is the first article that I have read that ties together the science of microbiology with my 12 years (and my father's 40 years) of practical experience, and is very much appreciated.
R. Watson, M.Sc., DMD
Calgary, Alberta

■ We have read with great concern and surprise the controversial articles on infection control by Dr. J. Hardie in the April and May issues of the *Canadian Dental Association Journal.*

The author has expressed a viewpoint that is in direct conflict with the infection control guidelines laid down by the Canadian and American dental associations, as well as the Centers for Disease Control (CDC) in the United States.

These guidelines clearly and explicitly set out the required procedures necessary to effectively prevent the transmission of infectious agents from patient to patient, as well as from patients to dental health care workers and vice versa.

At a time when our primary concern in dentistry is the continued well-being of our patients and staff, it is our professional duty to take every possible and practical precaution to achieve an effective infection control program in our offices.

While we are sure that every effort is taken by the *CDA Journal* editorial staff to ensure the high quality and technical integrity of the articles published, we feel that in order for Canadian dentists to be able to assess the validity of Dr. Hardie's views, it would certainly be most fitting to invite comment from recognized North American infection control specialists, such as Drs. Runnels, Cottone, Molinari and Crawford.

We are most concerned that these articles may provide Canadian dentists with carte blanche approval to disregard universal precautions, state-of-the-art infection control procedures and sterilization of handpieces, all strongly recommended by ADA, CDA and CDC.
Dr. L. Arenson,
Dr. A.M. Sher,
Richmond Hill, Ontario

Dr. Hardie's Response

My opinions on the Lewis and Boe study have been shared by the American Dental Association: "The American Dental Association refuses to draw conclusions about viruses from the Lewis and Boe study, emphasizing that there is no data available that indicates a contaminated dental handpiece can transmit viruses."[1] Dr. L. Liebson, the president of the Academy of General Dentistry, has stated[1] "I'd like to see the scientific community evaluate Dr. Lewis's study and conduct further research on the transmission of viruses through a handpiece so that we can begin to gather more definitive data before we change the guidelines." Dr. John Molinari,[1] quoted by Drs. Arenson and Sher, has expressed similar reservations about the Lewis and Boe study. Similar opinions were also expressed in a letter forwarded to all Canadian dentists by Dr. Les Allen, the president of the Canadian Dental Association. Therefore, I disagree with Drs. Arenson and Sher that my views on the handpiece are in conflict with those expressed by prominent individuals or associations.

In the lengthy article on infection control procedures (Hardie, J. Concerns Regarding Infection Control Recommendations for Dental Practice. *J Canad Dent Assoc* 58(5):377-386, 1992), I expressed support for the sterilization of invasive surgical instruments and for universal hepatitis B vaccination programs. Neither concept is in conflict with the American Dental Association or the Centers for Disease Control (CDC). The technique described for the disinfection of a handpiece is that recommended by the Canadian Dental Association. The views on environmental disinfection and waste products were extrapolated from many articles, but

principally from draft documents prepared by the Canadian Standards Association on behalf of the Canadian Ministers of the Environment. Thus, they do have some credibility. The opinions on the media's reporting of the AIDS dilemma are shared by Daniel Lynch, and were presented in an article published in the May issue of the *Journal* (Lynch, D. Another Perspective of AIDS. *J Canad Dent Assoc* 58(5):393-395, 1992). Drs. Arenson and Sher may disagree with my perspective on universal precautions, but they must be aware that while there is a perception that such precautions are effective, their usefulness has not been validated by scientific investigation.

After reading my May article, a physician with a high profile in the Canadian infection control community stated: "I have no great argument with any of your statements. I agree that universal precautions have been oversold in dentistry and I share your concern that OSHA policies will make the practise of dentistry either cumbersome or impossible." In the February 1992 issue of *JADA*, two prominent articles were titled: "Too Much OSHA," and "ADA Challenges OSHA Standard." Again, I disagree with Drs. Arenson and Sher that the four points listed in the summary of my May article are in conflict with any of the recommendations proposed by their authoritative sources.

Unlike Drs. Arenson and Sher, I happen to believe that the continued well-being of our patients and staff has always been and will continue to be a primary concern of dentistry, and not simply a response to the publicity surrounding AIDS. However, I would welcome any discussion on current infection control protocols that was charged with separating the myths from reality. Surely, that is the responsibility of any scientific profession prepared to withstand the fickleness of political and media pressure.

J. Hardie, BDS, M.Sc., FRCDC, FICDC
Vancouver, B.C.

1. Miles, L. L. and Weatherspoon, K.M., editors, Can handpieces transmit disease? *Dental Office* 11(6):11, 1992.

■ Teamwork

I am writing in response to Dr. Allen's report on teamwork that appeared in the April issue (Allen, L. Teamwork (President's Column). *J Canad Dent Assoc* 58(4):247, 1992).

Dr. Allen states that dentists are better qualified to manage patients (than dental hygienists). I would qualify that statement by saying that *some* dentists manage patients well, because I have witnessed blatant deceit, mediocre work, overbilling and insurance fraud by others. What is to be done? Short of taking the "hush" money offered by these employers, in the guise of benefits and outlandish salaries, the only recourse is to report the offenders to their respective associations. Now we have a thorn in everybody's side. Personally, I don't want to be deemed a trouble maker within my profession.

Have you ever wondered why hygienists frequently change jobs or become so dissatisfied that they leave the profession all together? No matter how long or hard we work, we are subjected to our boss's personal ethics, whims and moods. If dentists truly feel that we are not competent to deliver basic hygiene care and education, what are we doing in their offices now?

Predictions indicate that more and more hygienists will be required to fulfil the increasing public need and demand for periodontal and maintenance care. As our importance increases, we need to remain challenged and self-motivated. One manner of fulfilling these criteria is to be self-directing and self-governing.

I dream of the day when I can hang out my shingle and refer patients to the best dentists in town, and have dentists make referrals to me because of my professionalism and quality of care.

Dreaming? Time will tell.

Barbara Frost, RDH
Victoria, B.C.

■ CDAnet

It is obvious from Dr. Henry Kutzko's letter in the February issue of the *Journal* (Kutzko, H. CDAnet (Letters/Courrier). *J Canad Dent Assoc* 58(2):95, 1992.) that he has never actually used the CDAnet system.

My office has been on CDAnet for about six months now, and to say we love it is an understatement. The system has helped us to organize all the information we were recording manually anyway, and has made it possible to edit it at the touch of a button. If there is an error on the claim, we find out about it immediately while it is still fresh in our minds, not in three weeks time when the patient comes in to find out why the insurance company did not pay the claim.

For those patients whose insurance companies are still in the dark ages (i.e., not yet on CDAnet), claim forms are printed in seconds, legibly, with no writer's cramp. In fact, the single biggest shortcoming of the CDAnet system is the reluctance of the insurance companies to become involved. (Since I came on line, I have not seen a single computer company added to the list, although I understand there have been one or two that aren't big in this area.)

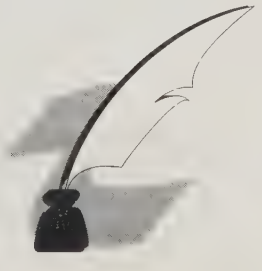
As for the concerns that the system benefits the insurance companies, I'm sure it does. I'm also sure that it is a tremendous benefit to our office and to our patients. I can assure any dentist with concerns about the system that EDI is far easier on the office staff than whatever you are doing now. Dental insurance is a part of practising dentistry in the 1990s, whether we like it or not. The fact of the matter is that CDAnet is currently the simplest, most efficient way of dealing with dental insurance.

Dr. Kutzko asks if it should be the responsibility of the dental office to administer information on the patient's behalf. To that I answer no. It is not our responsibility, but it is a service and a convenience both for us and for the patients.

I realize that CDAnet has not lived up to all of the original expectations. Online adjudication is still rare, and treatment plans still cannot be submitted electronically. Despite these shortcomings, and the reluctance of the insurance companies to become involved, the system works and it works well.

As more dentists become involved with the CDAnet system, our clout with the insurance companies will only increase and help to ensure a secure future for EDI in dentistry. I would urge those dentists with reservations about EDI to visit an office which uses CDAnet, talk to staff and to the patients, and watch the system in action. I'm sure that will convince them that EDI is a good thing.

William E. Turner, DMD
Thunder Bay, Ontario



Announcements

NATIONAL HIGHLIGHTS

August 28-30, 1992
44th Annual Scientific Session
Canadian Association of Orthodontists
Calgary, Alberta
(416) 491-3186

August 29-September 2, 1992
1992 Canadian Dental Association Annual Convention
Calgary, Alberta
See blue pages for more details or call Christine Leadman
1-800-267-6354
(613) 523-1770

September 17-20, 1992
28th Annual Meeting
Canadian Academy of Endodontics
Victoria, British Columbia
Dr. Raymond Greenfeld
(604) 270-8754
Dr. Leonard Atkinson
(604) 592-2511

August/Août 1992

August 7-9: 7th Annual Meeting of the International Society of Oral Oncology on "Diagnosis and Management of Infection in the Immunocompromised Host" being held at the Catamaran Resort Hotel in San Diego, California. For more information, contact: Dr. R.B. Abrams, The Children's Hospital, 1056 East 19th Ave., Denver, Colorado 80218, or call: (303) 861-6788.

August 7-10: 3rd Singapore International Dental Exhibition & Conference in Singapore. For more details, contact: SIDEC 92, Orchard Dental Centre Pte Ltd 268 Orchard Rd, #05-07, Singapore 0923.

August 9-14: 70th Annual Dental Association of South Africa Congress in Sun City, South Africa. For information, contact: Helmut Heydt, DASA Congress, Private Bag 1, Houghton 2041, South Africa.

August 20-25: Canadian Society of Forensic Science Annual Conference will be held in Halifax, Nova Scotia. For more information, contact: Fredricka Monti, Canadian Society of Forensic Science, Suite 215, 2660 Southvale Crescent, Ottawa, Ontario K1B 4W5 or call: (613) 731-2096.

August 28-30: International College of Dentists Canadian Section Annual Meeting and Convocation being held at the Palliser Hotel, Calgary, Alberta. For information, contact: Dr. W.J. Spence, Registrar, 12A Yonge Blvd, Toronto, Ontario M5M 3G5, (416) 487-2928.

August 29: University of Alberta, Dental Hygiene Class of '67 will be holding a reunion in conjunction with the CDA Convention in Calgary, Alberta. If you haven't already received an information package, contact: Stephanie Brawn at: (604) 980-3267.

September/Septembre 1992

September 21-25: FDI World Dental Congress being held in Berlin, Germany. For details, contact: Christine Leadman, CDA Conventions, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6.

September 30-October 3: 1st International Congress of the Turkish Dental Association being held at the Ataturk Cultural Center in Izmir. For details contact: Turkish Dental Association, T.D.B. Izmir Dishekimler Odasi, Mahmut Esat Bozkurt Cad. No. 38/4, 35220 Alsancak, Izmir, Turkey.

October/Octobre 1992

October 14-17: 2nd Annual Meeting of the Bulgarian Dental Association will be held in Plovdiv and will be jointly organized with the Quintessence Publishing Group. For more information contact: Dr. J. Mihailov, Director, the Bulgarian Dental Association, 1000 Sofia, 34-A Bulgaria Ave., Bulgaria.

October 16-17: Southern Ontario Surgical Orthodontic Study Group Meeting in Windsor, Ontario. For details, contact: Dr. Jeff Berger, (519) 259-2632 or fax (519) 258-2637.

October 17-22: American Dental Association Convention will be held in Orlando, Florida. For information, contact: the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611, or call: (312) 440-2500.

October 28-31: 1st International Congress of the Turkish Society of Restorative Dentistry will be held in Antalya, Turkey at the Antalya Sheraton Voyager. For more information write: Dr. Fatma Koray, Faculty of Dentistry, University of Istanbul, 34390 Capa, Istanbul, Turkey.

October 30-31: Craniofacial Development and Anomalies Conference will be held at the University of Alberta. For information contact: Dr. G.H. Sperber, Department of Oral Biology, University of Alberta, Edmonton, Alberta T6G 2N8, at: (403) 492-5194, or fax: (403) 492-1624.

November/Novembre 1992

November 18-20: Swedental Annual Dental Fair in Stockholm, Sweden. For details, write: Ms. May-Britt Carlsson, Press Officer, 125 80 Stockholm, S-125 80 Stockholm, Sweden.

November 28-December 3: Greater New York Dental Meeting being held at the Jacob K. Javits Convention Center, New York Marriott Marquis in New York City. For more details, contact: Greater New York Dental Meeting, New York Marriott Marquis, 1535 Broadway - 3rd Floor, New York, N.Y. 10036-4017 or call: (212) 398-6922.

Editorial

CANADA IS NOT FOR SALE

Dr. George Beers (1841-1900) was one of Canada's most remarkable dentists. He was scholar, athlete, soldier and patriot; the founder of the first dental journal in Canada (in 1869), the first secretary of the Quebec Dental Association, the founding dean of Quebec's first dental school, a captain in the militia and the inventor of formal rules for lacrosse (still on Canada's statutes as our national sport).

Dr. Beers was an intense patriot and fiery orator. His speech, "Canada Is Not For Sale," delivered to an audience of American dentists in 1888, during one of the more tense periods of Canadian/American relations, eventually influenced a Canadian federal election.

Dr. P. Ralph Crawford

We should remember his words this month, as our nation celebrates its 125th anniversary. Every dentist in Canada should stand up, proud and tall, and shout out the words of Dr. George Beers, "Canada Is Not For Sale" – not today, not tomorrow, not 100 years from now. We should invoke whatever deity we worship and proclaim our thanks for the privileges and opportunities we enjoy as Canadians.

Think about the conditions in Yugoslavia, Thailand, Haiti, Russia, the Middle East and dozens of other locations – each less than a day's flight from our safe Canadian homes. Think about the civil wars, violence and hopelessness that people there must face on a daily basis. Think about the hunger, famine, and deprivation that are commonplace in Ethiopia, Mozambique and dozens of other countries today. Almost 50 per cent of the world's people will go to bed hungry tonight.

Canada doesn't have to cope with staggering pollution of its air or water, or with overcrowding and noise. Ask dentists who have travelled to Mexico City, Calcutta or Beijing what that's like. Nor do we have to contend with the teeming streets, packed subways, unbelievable traffic (except in Toronto), or the perpetual din of stressed-out people that is common in cities like Tokyo, Hong Kong and New York.

So, before we add our voices to the outcry over Canada's constitutional woes or its staggering deficits, cross-border shopping, food banks, unemployment, uncontrolled logging, Great Lakes pollution, low wheat sales and depleted Northern cod stocks – let's put this country's problems in perspective.

Canada, remember, was selected by the United Nations as the number-one country in the world in terms of overall quality of life. Think of what that means to you, as a Canadian dentist.

Certainly, the Canadian way of life isn't perfect. Nothing is. But it's pretty close to perfect when it's compared to how people in other parts of the world live. There are no problems in this country that are really worth complaining and whining about.

To me, the reality of Canada is well expressed in a saying of Phillip Chesterfield, the 18th century English statesman: "Aim at perfection in everything, though in most things it is unattainable." With the constant self-examination that is in vogue in this country today, however, it would appear that most Canadians prescribe to St. Augustine's philosophy on life: "This is the very perfection of a man, to find out his own imperfection."

Canada may well be imperfect. But I wouldn't want to live anywhere else. The simple fact that "imperfect" Canada attracts thousands of immigrants each year, from every part of the world, proves that we are a great nation. A few years ago, as you may recall, a group of Tamil refugees from India were dumped into the sea off the coast of Nova Scotia. They waded through water up to their necks to find a new life in Canada – after surviving a perilous voyage across the Atlantic.

Surely, any of us who have seen the hopelessness and poverty that many people live with every day in their native lands, and knowing what we have here in Canada, would willingly wade through broken glass on our bare hands and knees if that would guarantee our Canadian way of life.

From a dental perspective, the fact that the National Dental Examining Board has never been able to keep up with the demands of off-shore dentists seeking Canadian certification must say something about how great it is here.

Yes, I know that times are tough in this country today. And yes, the recession has hit some dentists pretty hard. But last month, when I had the privilege of addressing the graduating class at the University of Toronto – over 100 new dentists – I was proud to be able to tell them that in my 10 years as an NDEB examiner, meeting dentists from around the world, I never met a candidate who was better qualified to practise than a graduate from one of our 10 Canadian schools. I told them, with no hesitation whatsoever, that they are the elite of their profession.

I may not have been able to tell them that this is the most opportunistic time to be a dental graduate, but I could, and did, say that Canadian dentists have a long, long history of survival. The unimaginable hardships of practising dentistry on the frontier, in the depression years, and through two world wars never stopped Canadian dentists. A recession in the '90s won't either.

Our country and our profession will survive because it is the Canadian way. It's not the time to sell Canada short, it's time to celebrate 125 years of proud heritage.

"I am sure that you could have nothing but contempt for any free people who measure their allegiance purely by commercial standards, and who, fearing to face difficulties which meet every nation, turn peddlers instead of protectors of their national birthright. Just as you had and have your croakers and cowards, we have ours, but Mr. Chairman, Canada is not for sale." ■

(Dr. W. George Beers in a speech to the New York Dental Society in Syracuse, 1888.)

P. Ralph Crawford, BA, DMD
Editor, Journal of the Canadian Dental Association

In case of personal disability...

will a lack of coverage add up to another problem?

No one plans on becoming sick or injured and unable to work — yet it can and does happen and *it can happen to you*. As you begin the recovery process, you really appreciate, *perhaps for the first time*, what a wise decision it was to obtain the protection of the Canadian Dentists' Insurance Program (CDIP) Long Term Disability and Office Overhead Expense Insurance.

Two separate plans, with two separate objectives, they work together to help you enjoy a financially worry-free recovery.

Personal and practice protection

CDIP's Long Term Disability Insurance provides a source of income that allows you to maintain your pre-disability standard of living and meet continuing *personal* expenses related to shelter, food, clothing, car expenses, and more. The CDIP allows you to insure for an amount based on your net annual income (after business expenses, pre-tax). The maximum benefit allowed under the CDIP is $6,000 per month.

CDIP's Office Overhead Expense Insurance is designed to pay the continuing expenses of your office during a period of personal disability. These include important items such as rent, employee salaries, utilities, interest on loan and lease payments on office equipment, to the overall Plan maximum of $15,000 per month.

Rates competitive with many private plans

The premiums involved are competitive with many private plans due to the pooled buying power of CDIP... a small percentage of your earnings invested in these plans will be well justified by the *peace of mind* such coverage brings.

Take time now to review your coverage in these plans. Don't wait until you have a health problem to increase or apply for Long Term Disability Insurance to maintain your pre-disability lifestyle... or until on-going expenses that could be met by the protection of Office Overhead Expense Insurance put the future of your practice in jeopardy.

Long Term Disability and Office Overhead Expense Insurance are two of the most important plans offered through CDIP — a program sponsored by the Canadian Dental Association and the co-sponsoring provincial dental associations and administered by CDSPI... coverage tailored to the needs of the dental profession.

Ask for your free planning guide

We would be pleased to send you a free planning guide to help you determine the amount of coverage you need plus further detailed information on both plans. Call CDSPI toll-free today and ask to speak to a Personal Service Representative. After you have determined the coverage that is right for you, you can sit back and relax knowing you are protected against unforeseen problems.

CDIP: available only to the dentists of Canada from your partners in personal and practice protection...

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

CDSPI
CDIP

1-800-561-9401 ***Extension 236*** *British Columbia, Alberta, Saskatchewan, Manitoba, Yukon and Northwest Territories*
Extension 238 *Ontario*
Extension 234 *Quebec and Atlantic Canada*

1-416-296-9401 ***Metro Toronto***

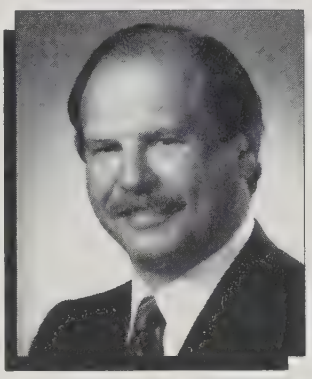
1-416-296-8920 ***Fax***

NOTE: to dentists in the Province of Quebec: In order to apply for and/or increase your coverage in these plans or programs you must be a member of the Canadian Dental Association.

President's Column

THE IMPORTANCE OF GETTING TOGETHER

In the fall of 1990, I got my first taste of what life would be like after I became CDA's president. It happened when the president of the day, Dr. Gilles Dubé, asked me to represent him and CDA at the Saskatchewan College of Dental Surgeons annual meeting in Saskatoon. Held in conjunction with the Canadian Academy of Endodontics' annual gathering, the college's meeting was well attended by both dentists and auxiliary personnel.



Dr. Les Allen

I'd been asked to address the group during a luncheon, and began my talk by stating, somewhat tongue in cheek, that Dr. Dubé had given me the choice between going to Singapore and the 1990 FDI World Dental Congress or coming to Saskatoon. I chose Saskatoon, I said, because of the opportunity I'd have to renew old acquaintances in the Canadian Academy of Endodontics and see my many friends in Saskatchewan. People I'd come to know and respect during my many years of participation in the Western Canadian Dental Society.

But I wasn't being facetious when I said that I'd willingly cancelled my Singapore travel plans in favor of a trip to the heart of the Prairies. Even today, more than a year later, and with many other meetings to reflect on, I still think that I made the best choice.

I had an opportunity to attend the 1991 FDI World Congress in Milan last fall, but because of scheduling conflicts I could not attend the Saskatchewan meeting this year. I was disappointed, because I'd learned something important in 1990, when I chose to go to Saskatoon – and talk with old friends – instead of going to Singapore.

What I discovered, quite simply, was that my trip to the Prairies was just the beginning of the wonderful opportunity I'd have, as CDA's president, to make new friends at dental meetings and conventions all across Canada. I'd always known how important it is for CDA representatives to be present at these events, and available to talk to the grassroots members, but I hadn't realized how much I'd enjoy being CDA's chief spokesperson. How many dedicated, remarkable people I'd meet.

And I have enjoyed myself. Even the provincial convention in Manitoba, my home province, despite all the pressure I put on myself by attempting to shine under the scrutiny of my closest friends and colleagues, was great. Then there was Vancouver, which gave me a wonderful opportunity to spend time discussing dentistry, both its practical and political aspects, with many of the dentists who attended dental school in Manitoba before moving to this lotus land.

But it's a two-way street. Today, when CDA and CDAnet go to a provincial convention or meeting, we take well-developed convention booths and displays with us, along with promotional material and hard-working staff members. As a result, more and more of our members and friends are coming by to make enquiries about one thing or another, or just to say hello.

This certainly held true at the provincial meeting in Quebec, Les Journées dentaires. To me, it's a very good event, really upbeat. It's also one of the only opportunities francophone dentists have to attend lectures, or even talk to exhibitors, in their own language. That makes it a very active, very exciting time.

CDA, as always, was exceptionally well received during Les Journées Dentaires this year, by both its francophone and anglophone members. I felt welcome and wanted throughout my stay in Montreal, just as I did at the ODA Convention in Toronto. That event, as events hosted by ODA usually are, was a splendid opportunity to exchange ideas, debate philosophies and just renew old friendships.

My trips to the East have also given me great pleasure and satisfaction. The support, the hospitality, and the genuine friendship extended to Jardine Neilson, CDA's executive director, and me on our travels to Atlantic Canada have reaffirmed the reports of previous presidents who travelled this way before us.

Yes, I've been on the road a lot this year. More than once, a staff member or colleague has asked me how I do it. Where I find the enthusiasm and energy to hop from plane to plane, and meeting to meeting, to represent CDA. It's an easy question to answer. Every meeting I attend, from the Alpha Omega fraternity meetings in Toronto and Montreal, the grad dinners at the 10 dental schools, to the International College dinner meetings, each and every one, is an opportunity for dentists to be together and for me to be with them.

These meetings solidify the profession, and, where CDA is concerned, reinforce our position on many fronts, but particularly as the national voice of dentistry in Canada. The next meeting – CDA's own convention – is just a month away. It will be great opportunity for you and me to meet and say hello, either on the convention floor or during our annual board meeting. Yes, it will be a busy and hectic period for both staff and board members, but it also promises to be an exciting and fulfilling time for everyone. I hope you can join us in Calgary. ■

Les Allen, B. Comm., DMD
President of the Canadian Dental Association

CANADIAN DENTAL ASSOCIATION

"CDA is my source of national information."

Dr. Pam Zakarow
Oshawa, Ontario

Dr. Pam Zakarow: General practitioner, equestrian — and member of CDA.

"In my practice, I nee someone who will tell me what's new and what's important on the national scene. That's CDA."

Professional Information — scientific, financial, educational. If it's important to your practice, we'll tell you about it. It's one of the ways CDA works for you, and for dentists all across Canada.

News Update

Dr. Peter Fendrich New ODA President

Dr. Peter Fendrich

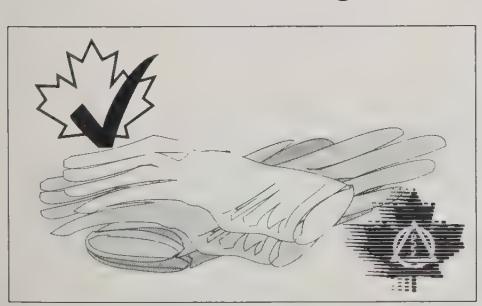
The Ontario Dental Association (ODA) has installed Dr. Peter Fendrich, a private practitioner from London, Ontario, as its new president.

Dr. Fendrich, a 1975 graduate of the University of Western Ontario, was first elected to the ODA board of governors in 1987. That same year, he received an Award of Merit from ODA for his handling of the insurance-related topics of capitation and assignment. His installation as ODA president took place during the association's annual meeting last May.

ODA's vice-president for the coming year will be Dr. George Sweetnam. He was first elected to the ODA board in 1983 and to its executive council in 1987.

Dr. Sweetnam, a general practitioner from Lindsay, Ontario, graduated from the University of Toronto in 1971. ■

Glove Manufacturer Receives CDA Recognition



Rubber surgical gloves manufactured by Ocean Pacific MedTec have been licensed by CDA to carry the associations's product recognition logo.

Ocean Pacific MedTec is the first glove manufacturer to apply for and receive CDA recognition of its products. The surgical glove recognition program is a joint initiative of the Canadian General Standards Board (CGSB) and CDA. Only those manufacturers whose surgical gloves have been certified by CGSB may apply to carry CDA's product recognition logo and the statement "A product recognized by the Canadian Dental Association for professional use" on their products. ■

First Dental Visit is Free For B.C. Kids

A new program launched by the College of Dental Surgeons of British Columbia and the B.C. Ministry of Health in May will provide free introductory dental visits to children under the age of three.

Intended to promote preventive dental health practises in young children, The "First Dental Visit" program is expected to run for three years, but will be reviewed on an annual basis. Under the program, children will receive a complimentary first dental appointment that will include an orientation to the dental office and a visual check of their teeth. In addition, the parents of participating children will be consulted about oral hygiene.

The program's estimated $500,000 annual cost will be picked up by participating dentists. In addition, the B.C. government will provide funding to ensure that "urgent-need" children receive continuing free dental care.

"We would like to make that first dental visit an enjoyable one to help instill positive attitudes toward preventive dental care," said Dr. John Diggens, the president of the B.C. College of Dental Surgeons and a member of CDA's board of governors. "The preventive approach, as advocated by the dental profession, has had a significant impact on the improved health of our population. It is also the most effective and least

Prosthodontists Elect New Executive

The Association of Prosthodontists of Canada elected its 1992 executive March 25, during the association's annual meeting. The members of the new executive are, left to right: Dr. Brian Kucey, vice-president; Dr. Robert Loney, councillor; Dr. Ronald Fisher, president; Dr. Lawrence St. Pierre, past-president; and Dr. Graham Pettapiece, councillor. Missing from the photograph are: Dr. Jack Gerrow, president-elect; Dr. Anthony Sneazwell, secretary-treasurer; Dr. Morley Rubinoff, councillor and Dr. Pierre De Grandmont, councillor. ■

expensive method of caring for your child's teeth."

Dr. Diggens said that all of the more than 2,200 dentists in B.C. would be invited to participate in the program. ■

New National Literacy Project Planned

The Canadian Public Health Association (CPHA) has launched a new program designed to sensitize other health-related organizations in Canada to the impact limited reading and writing skills may have on a person's health.

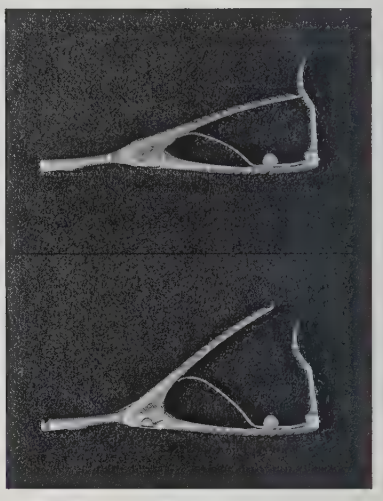
Known as the National Demonstration Project on Literacy, the program will encourage health-related organizations in Canada to inform their respective members about the link between reading and writing difficulties and poor health. It will also help participating organizations to develop specific strategies, directed at individual practitioners, to assist patients with literacy limitations.

It is believed that 38 per cent of Canadians have difficulty reading and writing. Furthermore, recent studies indicate that individuals with low levels of education are more likely to suffer from poor health than individuals who have attained higher levels of learning. ■

Carol O. Boucher Prosthodontic Conference

Dr. Douglas Chaytor (left) of Dalhousie University, Halifax, receives the Carol O. Boucher Prosthodontic Conference past-president plaque from incoming president Dr. David Donatelli of Monroeville, Pennsylvania. The Carol O. Boucher Conference, an annual event held each April in Columbus, Ohio, honors Dr. Carol Boucher, the former chairman of the prosthodontic department at Ohio State University, and a world renowned clinician and lecturer. ■

Is April "What's It" Solved?



The *Journal* received only one answer to the April "What's It" mystery.

Dr. Lorne Brooks of Calgary, Alberta, wrote, "I think the instrument depicted is a glorified specialized hemostat designed for twisting fine wires. We used an instrument of this type 45 years ago. It enabled us to tie the two ends of the wire with one hand, by spinning the "hemostat" – saving much time and minimizing the number of hands in the patient's mouth."

Any other ideas? Please contact Dr. Ralph Crawford, *Journal Editor*, 1815 Alta Vista Drive, Ottawa, Ontario, K1G 3Y6. ■

CORRECTION

In the June issue of the *Journal* (Vol. 58 No. 6), the two photographs that appeared on page 500 in Dr. Randall David Mazurat's article, "Longevity of partial, complete and fixed prostheses: A literature review," should have appeared on page 484 in Drs. Ronald Jordan and David Suzuki's article, "The Ideal Composite Material."

Furthermore, the captions that ran with the photographs were reversed. The caption that ran with **Fig. 1** actually described the image depicted in **Fig. 2** and vice versa.

Fig. 1: *A malaligned peg-shaped maxillary lateral incisor in a 24-year-old patient.*

Fig. 2: *The same lateral incisor shown in Fig. 1 three years after crown build-up with hy-*

The *Journal* regrets these errors, and apologizes to Drs. Mazurat, Jordan, and Suzuki for any confusion that they may have caused. ■

Trident
Trident
Trident

The Dawn of a New Era in Patient Education

Did You Miss It?

Patient Education For The Nineties

October 1991 marked the dawn of a new era in patient education. The signal event? The launch of CDA's Dental Information System.

Every dentist in Canada received a brochure that introduced the system: what it is, how it works, and how it can work for you.

Hundreds have already contacted CDA for more information or to place their initial order. Here's your opportunity.

The Dental Information System is patient education for the Nineties. It's what dentists told us they needed. What patients told us they wanted. It is dental information redefined: the way it looks, the way it's organized, the way it's read, the way it works.

And it's available now.

Call CDA Toll-Free Today

You can order individual booklets, the whole series, or the custom designed display rack. CDA members save 25% on everything.

WHAT HOW THE DENTAL INFORMATION SYSTEM WHEN WHY

The Dental Information System: clear, comprehensive, useful and friendly

•8 booklets, 12 pages each (5" X 8") •rigorously reviewed by dental experts •wide range of topics

•easy access indexing system •boxes, charts and photography that make information lively

•custom designed plexiglass rack (24" X 24" square)

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

Call: 1-800-267-6354 (Western Canada, Newfoundland, and Labrador)
1-800-267-6364 (Eastern Canada)

Colgate™

The Dental Information System has bee made possible through the generous assistance of Colgate Palmolive.

Instructions For Contributors

The *Journal* of the Canadian Dental Association welcomes the submission of previously unpublished articles, critical reviews of material on advances in dentistry, and clinical reports for consideration for publication. Material is accepted for publication on the understanding that it is submitted solely to the *Journal* and that it has not previously been submitted elsewhere.

Scientific Articles:

Are contributions dealing with research, diagnosis and treatment of dental disease, studies in education, clinical and laboratory research, and other detailed investigations pertinent to dentistry and related fields. The text should not exceed 2,500 to 3,000 words.

Clinical Reports:

Are brief (up to 2,000 words) reports, case histories and clinical observations. References should be limited and a minimum number of illustrations used.

Opinions:

that are fully documented (800 words or less) will be reviewed for publication at the discretion of the editor.

Manuscript Requirements:

Submit three (3) copies (original and two (2) duplicates) to the Editor, Journal of the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6. All graphs, photographs, charts and tables must also be submitted in triplicate. Authors are asked to submit their articles on computer disks, if possible, stored in Word Perfect, Word Star or ASKE. (IBM compatible programs, i.e. DOS-based, are definitely preferred.) Hard copy, in triplicate, must still be provided for articles submitted on disk. For more details, please contact the editorial staff.

A covering letter designating one author as the correspondent, with his or her full address and telephone number, must accompany the article. All scientific articles are subject to review by selected consultant referees. Acceptance or rejection of an article for publication is based on the referees' reports plus editorial consideration.

The editor reserves the right to edit manuscripts for stylistic consistency, clarity and conciseness. The author named as correspondent will receive a copy of the edited manuscript for checking prior to publication. If the author does not respond promptly, within the time allotted, his or her acceptance of the final article will be assumed. No exceptions will be made.

Manuscript Format:

All material (title, abstract, text, references, tables and legends) should be typed, double-spaced, on one side of 8 1/2" x 11" pages, with margins of at least one inch on all four sides.

Article Titles:

Should be descriptive but concise and suitable for indexing. Lengthy titles will be subject to editing.

Abstract:

Stating the purpose, results and conclusion of the work must accompany all manuscripts. All abstracts will be translated into French (or English, as the case may be). Abstracts should be approximately one typewritten page (250 words in length), maximum.

Authors Affiliations:

The authors' names, degrees, and university affiliations must be provided. Authors are responsible to disclose to the Editor any financial interests they may have in products mentioned in their article.

References:

Should be selective. They must be keyed to the text and numbered consecutively. *Journal* references must give the author's name, article title, abbreviated journal name, volume number, first and last page numbers of article and year of publication, i.e.,

1. Hechter, F.J., Symmetry and dental arch form of orthodontically treated patients. *JCDA* 44:173-184, 1978.

For books, give the author's name, book title, location and name of publisher, and year of publication, i.e.,

2. Kilpatrick, *H.C. Work simplification in dentistry*, ed. 2, Philadelphia, Saunders, 1964.

Illustrations:

Should be of high (professional) quality for reproduction.

All photographs should be submitted in triplicate as glossy black and white or color prints, or as color slides. When color slides are submitted, authors may submit one color slide and two glossy color prints of each illustration rather than three color slides.

On the back of each print or slide, the figure number and the top edge should be indicated lightly using a grease pencil. Each set of photographs and slides should be placed in a separate envelope and marked with the authors' name and the title of the article. Photographs and slides will be kept on file in the *Journal* department for a year following publication. Authors may request return of their illustrations only up until that time. (The editor reserves the right to print color prints or slides in either black and white and/or color, as he sees fit.)

Graphs and line drawings should be of professional quality. The original drawing should be submitted, if possible, or a black and white glossy print of the drawing.

Tables, Charts and Graphs:

Should be well organized to complement the text. They should be keyed by number in order of appearance in the manuscript. Each of these illustrations should be on a separate page with title and footnotes.

Legends:

For all illustrations must be typed (grouped) on a separate page. Photomicrograph legends must specify original magnification and stain.

Most articles are published at no cost to the author, but a fee could be levied if extensive illustrative, formular, tabular or photographic matter is used.

Permissions and Waivers:

Must accompany the manuscript. Waivers are mandatory for the publication of photographs of patients unless faces are masked to prevent identification. Waiver forms are available from the *Journal* of the Canadian Dental Association. Permission of the author and publisher must be obtained for use of previously published material quoted in the text and for use of previously published illustrations.

Reprints:

Twenty-five complimentary reprints are mailed to the corresponding author of Scientific articles after the article is published. Additional reprints of Scientific articles, or reprints of Feature articles are available through the *Journal* for a fee. Additional copies (tear sheets) of articles may be requested 30 days prior to publication. Prices for reprints and copies (tear sheets) are available on request.

Please Note:

Manuscripts that do not conform to the above requirements will be returned to the author. Please read all instructions thoroughly. ■

Library/Bibliothèque

Aphthous Stomatitis

Stomatite aphteuse

1. Addy, M. and Hunter, L. "The effects of a 0.2% chlorhexidine gluconate mouthrinse on plaque, tooth staining and candida in aphthous ulcer patients. A double-blind placebo-controlled cross-over study." *J Clin Periodontol.* May 1987; 14(5):267-73.
2. Barnes, D.P. and Primosch, R.E. "Therapeutic recommendations for aphthous ulcerations in children." *Compendium.* May 1990; 11(5):312, 314, 316.
3. Bittoun, R. "Recurrent aphthous ulcers and nicotine." *Med J Aust.* April 1991; 154(7):471-2.
4. Blondeau, J.M. and Embil, J.A. "Herpes simplex virus infection: what to do!" *J Canad Dent Assoc.* Aug. 1990; 56(8):785-7.
5. Chadwick, B. and others. "Hexetidine mouthrinse in the management of minor aphthous ulceration and as an adjunct to oral hygiene." *Br Dent J.* Aug. 1991; 171(3-4):83-7.
6. Collier, P.M. and others. "Topical 5-aminosalicylic acid: a treatment for aphthous ulcers." *Br J Dermatol.* Feb. 1992; 126(2):185-8.
7. Colvard, M. and Kuo, P. "Managing aphthous ulcers: laser treatment applied." *JADA.* Jun. 1991; 122(7):51-3.
8. Conklin, R.J. and others. "Common inflammatory diseases of the mouth." *Int J Dermatol.* Jan-Feb. 1991; 30(5):323-35.
9. Dale, R.A. and others. "The effect of ORA-5 on recurrent aphthous ulcers." *Gen Dent.* Jan.-Feb. 1990; 38(1):32-5.
10. Eisen, D. and Ellis, C.N. "Topical cyclosporine for oral mucosal disorders." *J Am Acad Dermatol.* Dec. 1990; 23(6 Pt. 2):1259-63; discussion 1263-4.
11. Hunter, L. and Addy, M. "Chlorhexidine gluconate mouthwash in the management of minor aphthous ulceration. A double-blind, placebo-controlled cross-over trial." *Br Dent J.* Feb. 1987; 162(3):106-10.
12. MacPhail, L.A. and others. "Recurrent aphthous ulcers in association with HIV infection. Diagnosis and treatment." *Oral Surg Oral Med Oral Pathol.* Mar. 1992; 73(3):283-8.
13. Meiller, T.F. and others. "Effect of an antimicrobial mouthrinse on recurrent aphthous ulcerations." *Oral Surg Oral Med Oral Pathol.* Oct. 1991; 72(4):425-9.
14. Moskona, D. and others. "Recurrent aphthous stomatitis." *Refu Hashinayim.* Jan. 1988; 4(1):24-30.
15. Palopoli, J. and Waxman, J. "Recurrent aphthous stomatitis and vitamin B12 deficiency." *South Med J.* Apr. 1990; 83(4):475-7.
16. Pedersen, A. "Acyclovir in the prevention of severe aphthous ulcers [letter]." *Arch Dermatol.* Jan. 1992; 128(1):119-20.
17. Ricer, R.E. "Sucralfate vs. placebo for the treatment of aphthous ulcers: a double-blinded clinical trial." *Fam Pract Res J.* Fall-Winter 1989; 9(1):33-41.
18. Rosenstein, D.I. and others. "Treating recurrent aphthous ulcers in patients with AIDS." *JADA.* Oct. 1991; 122(11):64, 67-8.
19. Ruah, C.B. and others. "Treatment of severe recurrent aphthous stomatitis with colchicine." *Arch Otolaryngol Head Neck Surg.* Jun. 1988; 114(6):671-5.
20. Santis, H.R. "Aphthous stomatitis and its management." *Curr Opin Dent.* Dec. 1991; 1(6):763-8.
21. Scully, C. and Porter, S. "Recurrent aphthous stomatitis: current concepts of etiology, pathogenesis and management." *J Oral Pathol Med.* Jan. 1989; 18(1):21-7.
22. Siegel, M.A. "Medication can induce severe ulcerations." *JADA.* Sept. 1991; 122(10):75-7.
23. "Treating canker sores [news]." *ASDC J Dent Child.* Mar-Apr. 1991; 58(2):90.

Acquisitions

Books

1. Carlson, David S. *Craniofacial growth therory and orthodontic treatment.* Ann Harbor, Michigan : Center for Human Growth and Development, 1990.
2. LeBlanc, John P. *Trigeminal nerve injury: diagnosis and management.* Oral and Maxillofacial Surgery Clinics of North America, vol. 4 (2), Philadelphia : Saunders, 1992.
3. Redding, Spencer, W. *Dentistry in systemic disease: diagnostic and therapeutic approach to patient management.* Portland, Oregan : JBK Publishing, 1990.
4. Stratton, Russel J. *An atlas of removable partial denture design.* Chicago : Quintessence, 1988.
5. White, Charle M. *The miracle of dentistry.* New York : Carlton Press, c1974.
6. Wilson, Thomas G. *Advances in periodontics.* Chicago : Quintessence, 1992. ■

One copy of the above package of articles is available for $5.00 to all CDA members and for $10.00 to non-members. (plus GST and, Ontario residents, please include 8% sales tax.)

Daily: 1-800-267-6354

Envoy: CDN.DENTAL.LIB.

FAX: 613-523-7736

Les membres de l'ADC peuvent obtenir pour 5$ et les non membres pour 10$ une copie des articles de la bibliographie ci-dessus.

Aux heures ordinaires:
1-800-267-6354
Programme informatique

Envoy: CDN.DENTAL.LIB

Bélinogramme: (613) 523-7736

CANADIAN FUND FOR DENTAL EDUCATION

TRIBUTE CARDS

CFDE FCED

Remember that special occasion with a tribute gift to the Fund.
Contact: 105-1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
Telephone: 613-731-0493

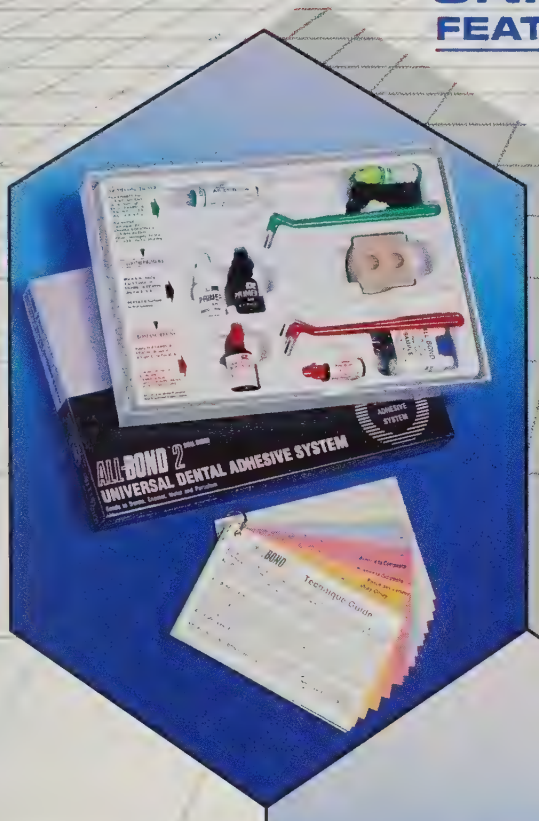
BISCO

INTRODUCES

THE 4TH GENERATION

UNIVERSAL ADHESIVE SYSTEM

FEATURING UNIQUE WET (MOIST)* BONDING



ALL-BOND® 2 DUAL CURABLE

ONE BONDING SYSTEM FOR ALL YOUR BONDING NEEDS

The ALL-BOND®2 system bonds to **dentin, enamel, metal** (precious and non-precious) **composite,** and **amalgam**

- Easy to follow instruction cards for all techniques
- Compatible with all composite brands
- Root desensitizing

*WET OR (MOIST) DOES NOT MEAN SALIVA CONTAMINATION

ALL-BOND®

OPAQUER/C&B

Companion kit for metal bonding, crown and bridge cementation

- Five shades of opaquer to attain all Vita Shades

ALSO AVAILABLE

ALL-BOND®

LINER-F

- Fluoride releasing
- Dual curable filled resin
- Amalgam bonding

BISCO THE SOURCE FOR COMPOSITE & ADHESIVE TECHNOLOGY

BISCO

Bisco Dental Products (Canada) Inc.
101-11500 Bridgeport Road
Richmond, B.C. V6X 1T2 1-604-276-8662
1-800-667-8811 (British Columbia, Alberta, Saskatchewan, Manitoba, Quebec)

Clinical Research Dental Supplies and Services Inc.
P.O. Box 28040
London, Ontario
N6H 5E1
1-800-265-3444 (Ontario)

Edith Martin is 82 and suffers from renal insufficiency, congestive heart failure, anemia, mild dyspepsia...and occasional headaches.

Does she know what analgesic is appropriate if she needs one?

Unless you warn her, she may not know that both ASA and ibuprofen are contraindicated for her condition and could also result in iatrogenic complications.

There are many brands of ASA and ibuprofen sold under different names over the counter. Consequently it could be important to anticipate self-medication for headache, fever or mild-to-moderate pain... and specifically to recommend Extra-Strength TYLENOL* as an appropriate analgesic.

Extra-Strength TYLENOL* acetaminophen:

- offers unsurpassed analgesic and antipyretic efficacy
- is equipotent to ASA, mg for mg
- provides increased efficacy at extra-strength dosage without significantly increased side effects
- has no significant drug-drug interactions
- is unlikely to cause GI and other side effects

EXTRA-STRENGTH

TYLENOL*

acetaminophen

Unsurpassed efficacy... plus remarkable compatibility

McNEIL McNeil Consumer Products Co.
Guelph, Canada N1K 1A5

For prescribing information see page 52

*Trademark © McNeil Consumer Products Co. 1990
Patient illustrated is fictitious and portrayed by a professional model

PAAB CCPP

Make Mine Modular: An Update on Computer Technology

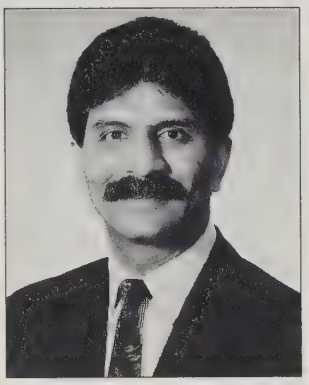
What a difference three months makes. Since April, when this column looked at computerizing the dental office, advances in computer technology have taken place at an unprecedented rate. And the profound advantages of modular design are becoming increasingly apparent.

"Modular" Defined

Traditionally, the architecture of a personal computer has involved many interdependent components all connected to one another through a "motherboard." The motherboard contains the "bus," or the pathways used to shuttle data between the various components. Key components such as the processor, co-processor, clock, and memory, are all connected directly to the motherboard in separate sockets. However, although it is sometimes possible to change one key component without changing others (i.e., it is possible to put in faster memory without changing the processor), there are many restrictions on computer upgradability.

In fact, for machines built with traditional architecture, an upgrade in processors or clock speed usually requires the purchase of a new computer. But the outlay of funds for a new system is not the only important factor to consider in upgrading a computer. If you already have a lot of data on your hard drive, this data must be transferred to the new computer, either by transferring it to a new hard drive, or by moving the old hard drive into the new computer. Unless you know how to do this yourself, you will require the services of a technician, which can be quite costly.

Fortunately, modular computers eliminate many of these concerns. In these machines, the key components are all placed on one or more separate cards that are plugged into the motherboard. Upgrading a modular computer simply involves removing one card and plugging a new one in its place. For instance, to upgrade a modular 386SX 20MHz to a 486DX 33MHz, you remove the card containing the 386SX processor and 20MHz clock, and plug in a card containing a 486DX processor with a 33MHz clock. The entire upgrade operation, including removing the cover on the computer, should take less than 10 minutes. And since all the other equipment in the computer remains the same, there is no need to transfer any data or make changes to any system settings.



Imtiaz Manji B.Sc. President of ExperDent Consultants Inc.

Two approaches have been used by the manufacturers of modular computers. Some put the processor, co-processor, clock, and cache on one card. The memory is placed on a separate card, since an upgrade in a processor does not necessarily require an upgrade in memory. Others place the processor, co-processor, clock, cache, and memory all on one card, believing that if you upgrade to a more advanced processor with a faster clock speed, you will also want to upgrade the memory speed of your system.

Key components are not the only hardware features that can be put on modular cards. Many video imaging and charting systems also use a modular design. This enables you to simply add a card to incorporate imaging capabilities to your charting module, or vice versa. The same holds true for video cards, which can be upgraded by adding more or faster memory chips, thereby speeding up the primary display on a system and increasing its capabilities.

The Cost of Modularity

The difference in price between modular and non-modular systems can be quite dramatic, especially when the hidden costs are considered.

Typically, the direct cost of upgrading a non-modular computer is the cost of a new computer, minus any salvageable components (i.e. the hard drive, floppy drives, video card, monitor, and keyboard) that can be removed from the existing system. Since most computers are priced as a package, however, transferring these salvaged components to the new machine will have a very minor impact on its final price.

There is also a hidden cost to consider in upgrading a non-modular system, namely the cost of having a technician transfer all the salvageable components to the new computer. Typically, this service will run in the hundreds of dollars. In addition, if these components must be reconfigured to operate in the new system, you may find that your staff will need an adjustment period to become familiar with the revamped system, which results in lost productivity.

The direct cost of upgrading a modular system is the cost of the board required for the upgrade. This will vary considerably, depending on what the upgrade card consists of (i.e., how many key components are housed on the card). Generally, an upgrade card will cost half of the basic system price (the price of the computer without a hard drive, video monitor, or any other optional items). Many manufacturers are offering hefty rebates on the used cards removed during an upgrade, however, depending on the type of processor they have and the clock speed.

There are no hidden costs involved with upgrading a modular system, as long as you change the cards yourself. If you are not comfortable with this, you will need to engage a technician to do the job (although a minimal amount of technician time will be required, much less than it would take to upgrade a non-modular system). Equally important, your staff won't need any training time to adjust to the new system, since the system itself is the same, albeit faster and more powerful.

Today's Technology and Beyond

Since modular systems are easy and relatively inexpensive to upgrade, they make it considerably simpler and more cost effective to stay current with computer technology. There is no need to suffer with an overburdened system because you cannot afford the computer

downtime that would be required to upgrade your existing system.

As modular systems are designed with future processors in mind, a modular 386SX 20MHz system can be expanded into a 386DX 33MHz or a 486 33MHz. The 486SX uses a "doubler" chip, which plugs into the extra processor socket. This doubler chip will increase the speed of the present 16, 20, or 25MHz 486SX or DX processor by two times. Or you can throw out your present 486 processor, and plug in the new 486DX2 instead.

The recently announced Intel 486DX2 features a central processing unit (CPU) that can be put into any existing 486SX or 486DX system. There is one limitation to consider before you do this, however. Although the 486DX2 processor runs at 50MHz, your system's bus speed will still be 25MHz, because the system will use the existing system clock (along with other chips that are dependent on system speed). An increase in performance will be obvious, but it will definitely not be as dramatic as what you would see if your entire system was running at 50MHz. To get a true 50MHz system, you either need to buy a new computer, or, if your system is modular, replace the card containing the 486SX or DX processor, the system clock, and other speed dependent chips, with a card containing a 486DX2, a 50MHz clock, and 50MHz system chips. The modular upgrade should cost less than half the price of a new computer.

Looking even further ahead, it will be possible to upgrade a 486SX 20MHz system to a 586 100MHz, when this new CPU becomes available. ■

The cure for complex legislation

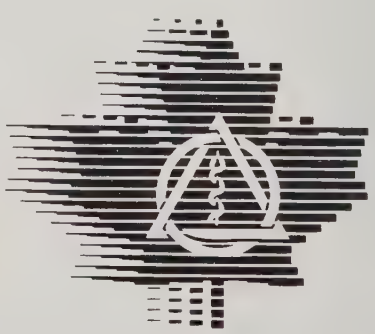
When you require prompt, reliable advice you can trust, you need a lawyer who believes in the importance of your concerns. Tracey Tremayne-Lloyd is committed to that belief, and to providing you with the level of service you need.

Since being called to the Ontario Bar in 1984, Tracey has concentrated her practice on health law and civil litigation. As the partner in charge of our Health Services Group, she provides assistance with changes in legislation, complaints and discipline, employment problems, malpractice and liability issues, infectious disease, the confidentiality of health care information and other health law-related matters. As a member of your team, Tracey can ensure you receive the service you deserve.

Tracey Tremayne-Lloyd
(416) 597-4088

GC
GOODMAN AND CARR
BARRISTERS AND SOLICITORS

It Pays to Join CDA



Book Reviews

Bench Top Orthodontics

by H.W. Lawson and J.L. Blazucki

1990, Quintessence Publishing Co., Chicago
140 pages, 325 illustrations, $38 (U.S.)

Although it was obviously written for dental students and laboratory technicians, this book could also be of value to the beginner or even the experienced professional as a reference book.

Bench Top Orthodontics is strictly a technical manual. As such, it presents information on the technical aspects of a wide variety of both fixed and removable orthodontic appliances.

The dental profession has waited a long time for a teaching manual of this type. Its authors should be commended. Their sound use of carefully-captioned photographs will make it easy for students to grasp the step by step instructions offered for the design and fabrication of fixed and removable orthodontic appliances.

The manual contains some fairly basic information about materials, soldering and wire bending techniques that is more suited to the student beginner. But even if the reader already has manual dexterity and wire bending skills, this book will make them more efficient, as well as providing a constant source of information on the various appliances described and on the way they should be fabricated.

Significantly, the book stresses the importance of good communication between the laboratory technician and the dentist. A clearly-written authorization prescription, giving complete details of appliance design and special instructions for an accurately-formed orthodontic appliance, is essential. However, based on this reviewer's experience at least, this is seldom done.

The book does fall short in neglecting to include a technique for the placement of orthodontic bands in alginate impressions. Alginate is the material of choice for most practitioners and, in actual fact, this technique can be an important factor in the procurement of an accurate working model for fixed appliances.

Nevertheless, the book is a refreshing departure from the standard textbook. It is a first-class teaching manual and should win a place on the book shelves of every dental ancillary. It will undoubtedly prove to be a most useful teaching tool.

Reviewed by:
Mr. Daniel Hone, FBIST, RDT
Managing Director, Hone Orthodontic Laboratory, Edmonton, Alberta.

Functional Appliances in Orthodontic Treatment An atlas of clinical prescription and laboratory construction

by Harry S. Orton

1990, Quintessence Publishing Co., London
103 pages, color plates, B & W schematic diagrams

More than anything else, this book is an instructive manual in the use of various orthodontic appliances, including activators (both bite-opening and bite-closing types) and intrusive splints (with high-pull headgear), as well as removable expansion appliances, Frankels, and the Herbst appliance.

Detailed information on how to design and construct each appliance, as well as the indications for its use, are given in a clear and concise format. Schematic diagrams of the appliances accompany the text. These diagrams are drawn like laboratory prescriptions, with the wire sizes and acrylic outlines clearly indicated. Excellent color photographs showing intraoral views of the various appliances are also used, but there are no actual case reports, or before and after pictures in the book.

The author emphasizes the treatment goals of each appliance, as they relate to its design, to show the "functional component objectives" of the various devices. This allows the reader to gain a complete understanding of how the appliances work.

The stated purpose of this book is to teach dental practitioners the basic building blocks of appliance design. It is the author's hope that dentists who use the book as a reference will become more resourceful and creative in designing appliances for their patients. Practitioners who adhere to a single treatment technique cannot possibly meet the diverse needs of the patient population.

Considerable attention is also given to the use of activator therapy for the correction of skeletal Class IIs, both deep bite and open bite. Unfortunately, the book fails to mention bionator or orthopedic correctors, which are the functional appliances most widely used in North America. There are many similarities between activators and bionators with respect to case selection, instructions to patients, clinical management of the appliance, and retention, however, and this type of information is given in a detailed, but concise, point by point fashion.

A brief discussion of Frankels is included to complete the subject, although the author includes the limited applications of Frankels and some of their shortcomings.

The Clark Twin Block appliance is only mentioned briefly – in an otherwise excellent chapter on intrusive appliances. The chapter on the Herbst appliance is excellent as well.

Throughout the book, it is obvious that the reader is receiving the benefit of the author's many years of clinical experience. Valuable insights into the more subtle aspects of patient selection and management, appliance design, fabrication and adjustment make this book a useful one for clinicians and technicians interested in functional appliances. Reading this book will help dental practitioners to recognize and avoid many of the pitfalls of functional appliance therapy.

Reviewed by:
Christine M. Mills, DDS, MS
Clinical assistant professor in orthodontics, Faculty of dentistry, University of British Columbia

Primary Preventive Dentistry, 3rd Edition

by N.O. Harris and A.G. Christen

1991, Appleton and Lange, San Mateo, Calif.
(580 pages, illustrations, $50 (U.S.)

Instead of focusing on one particular aspect of the discipline, this book takes a comprehensive look at the prevention of oral diseases. It includes the sometimes missing and often separate topics of nutrition, periodontal disease, caries risk, public health, and cariology, as well as tackling the more common subjects that one would expect to see.

The approach and style of the text are

interactive and adhere to sound educational principles. Chapters begin with specific objectives, are interspersed with a series of questions on the content of the text – set up like a quiz – and end with a self-evaluation. Good illustrations and figures are found throughout the book, which, for the most part, is easy to read.

The intended audience includes dental and dental hygiene students, and possibly graduate students in dental public health. It is difficult for this reviewer to judge whether the book is written at an appropriate level for such an audience without actually using it in the classroom.

Dental students who have looked at the text have offered positive feedback. However, it seems excessively detailed in many instances, often including subjects that are of more historical interest than of current clinical value.

In addition, some chapters contain serious errors. For example, in the first chapter the authors refer to a 60 per cent reduction in dental caries due to the consumption of fluoridated water. While this figure is corrected in a later chapter, an incomplete reading of the book will lead to an erroneous conclusion.

Equally lamentable, some of the references (mechanisms of action for fluorides) and techniques (the use of phase contrast microscopy) provided in the first chapter are out-of-date. At times, the information presented lacks a thorough critical evaluation, and may mislead the reader (i.e., the section on the benefits of anti-microbial and anti-inflammatory systems).

The section on prenatal fluoride supplementation is also of concern. Glenn and Glenn's research has been reviewed during a consensus conference on this topic, but the conclusions drawn from the conference are not particularly well presented in the book. I also question the author's decision to recommend the use of pit and fissure sealants in adults without including supporting data.

Another shortcoming of the book is that many of the topics it covers may be taught in other disciplines. Close coordination between the various disciplines will be needed to avoid confusing the reader. This is perhaps most important in the area of periodontics. As well, considerable material in the basic sciences, nutrition and public health sections may also overlap with other course material.

Several chapters of the book address content that is specifically directed at an American audience. The section on product monitoring, which deals primarily with the Food and Drug Administration, is a good example. For a Canadian audience, this information is interesting, but not particularly relevant. There are also a number of other references relative to U.S. costs and legislation. This information may become outdated quickly.

Of note is that many of the chapters are written by other experts. The chapter on topical fluoride therapy, for example, is written by one of the most knowledgeable experts in the world. The chapter on sugar and other sweeteners is also well written, providing a short introduction to the role of sugar and its substitutes, while the chapter on nutrition and the plaque diseases offers a more traditional list of topics, which relate more to overall general health. This chapter, however, is redundant, as most of the material is already covered in the chapter on sugar and other sweeteners. I find it difficult to justify two chapters for this topic, given the likelihood for repetition.

The chapter on understanding human motivation is particularly well-presented, summarized and organized, and a well-written summary of dental public health is presented in the chapter on public health programs.

Despite its United States perspective, the book provides a general, yet valuable description of the various dental public health methods employed to manage the oral health problems of the public. I am curious, however, to know why the chapter on school-based programs and the chapter by Graves were not combined.

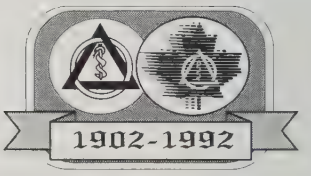
Similarly, the chapter on the clinical application of primary preventive dentistry procedures in the control of plaque diseases brings together much of what has been presented in previous chapters, while presenting a more cohesive and complete picture of preventive dentistry. For many, this chapter is enough. Does the reader really need to know the extensive detail that is often presented in earlier chapters? This book clearly does not endorse the concept that less is often more. Everything imaginable is here. The question is, just how many dental providers will actually get through the text?

In conclusion, this book represents an extensive amount of work and documentation, making it a resource that has no equal. It is thorough in scope and addresses every conceivable topic. This is both the greatest strength and weakness of the text. It is long, detailed, repetitious and tangential, while also being thorough, and in most instances well documented and comprehensive.

Any text with these characteristics can become dated rather quickly, and the task of providing detailed documentation for each topic covered by this book would seem to be nearly impossible. Clearly, it is a valuable reference for anyone in dental public health. However, its use in a dental school environment might be overly optimistic.

Reviewed by:
D. Christopher Clark, B.Sc, DDS, MPH
Associate professor and chairman
Division of preventive & community dentistry, University of British Columbia

CDA MUSEUM
Donations Requested



Memorabilia from CDA's 90-year history is now on display in antique cases in the library of the Canadian Dental Association headquarters in Ottawa.

As originally planned, the displays are changed on a regular basis to suitably depict different eras of our rich dental history. Donations of museum-quality dental artifacts are still being accepted and are very much appreciated. Particularly requested are larger items such as chairs, units, cabinets and X-ray machines, plus historical photos and records.

Also of interest to dental historians are the items highlighted in the column titled, **What's It?**, which appears monthly in the CDA *Journal*. This column elicits the help of readers in identifying some of the antique items presently on location in the museum.

For further information, contact **Dr. Ralph Crawford** at the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario, K1G 3Y6. (613) 523-1770 or call toll-free, 1-800-267-6354

Calgary 1992 • August 29 - September 2

CONVENTION UPDATE

A program for every member of the family!

Parents ... bring your teens and children to the CDA Convention in Calgary and enjoy our western hospitality. A fun filled program has been planned for children of all ages, so everyone can enjoy their visit. This is a great opportunity to see and experience Calgary. On Sunday night the whole family is invited to the Opening Ceremony. This is an evening of entertainment with a western flare. For the tots (ages 2-4), the downtown YWCA has reserved spots so your child can play with children their own age while you enjoy the convention. This is a drop off program and is available for all day or just an afternoon.

The YWCA has also promised us a fun filled program for children 5-12. On Monday, it will be a day of crafts, activities, and sightseeing in Calgary. They will be full of chatter by the time evening rolls around, and you can pick them up at your convention hotel. On Tuesday, the children can spend the day at Calaway Park with the friends and counsellers they got to know the day before. Calaway Park is a very popular theme park with rides, puppet shows and entertainment for all ages. As a special treat the children will have a B.B.Q. lunch. After a busy day, they will be returned to the convention hotels at 5:30 p.m.

A special program has been set up for the teens who may want a different type of adventure. The Alpine Club of Canada, along with Dr. Joey Brown have a super program planned for your teen. You will have to register early as there are only 50 spaces available. Your teen will leave Calgary on Monday, August 31st for an overnight Canadian Rockies Adventure. The teens stay in huts, go on hikes, and enjoy the great outdoors. No camping or hiking experience is required and there will be a lot of guides available so your teens can choose the best hike for them. What a great way to meet other teens from across Canada and experience the Rockies at the same time!

We have worked hard to provide an exciting convention for you and your family. I hope to see you at the convention in August.

Pauline Harrison, D.D.S.

Take a run on the west side

Take a run on the west side of the Bow Valley pathway in downtown Calgary. Experience the fine pathway system linking east and west Calgary along the banks of the beautiful Bow River.

The run will start at 4:30 p.m. Monday, August 31st. Join us for some different R & R and some fresh air after the daily sessions and before the Rodeo, Monday evening.

The start at Barclay Square and the downtown YWCA is accessible from all Convention hotels. Change facilities will be available at the YWCA.

Experience the view and the freedom of a paved pathway for your 5 or 10 kilometers run. Make this event a must on your Convention Calendar.

Mel Blasetti, D.D.S.

Table Clinic Presentations

We are very enthusiastic about the large response received thus far. Applications have been submitted from a wide spectrum of the dental community and include an excellent selection of topics. It appears that we will be treated to clinics addressing most of the specialties plus a goodly number of very fine general dentistry tips from many talented and articulate dentists.

The winner of the Canadian Dental Schools table clinic competition will be honoured. We will also have representation from the Dental Hygiene School, as well as practicing Dental Hygienists and Dental Assistants.

All in all, this promises to be a very full and interesting program. The room will be bursting at the seams, but with true western hospitality we hope to accommodate everyone who has applied.

Be sure you drop by and take some valuable tips back to your practice by speaking one-on-one to these many skilled clinicians.

R.D. Odland, B.Sc., D.D.S.

10 GOOD REASONS WHY YOU SHOULD REGISTER FOR THE CDA CONVENTION TODAY

1. The 1992 CDA Convention is an excellent opportunity to catch up on your Continuing Education Credits. This year, CDA will **certify attendance** at individual pre-convention AND convention lectures. This will enable you to **accumulate many credits in just a few days**.

2. An excellent scientific program has been developed for the entire dental team. **The 35 lectures** on the program will cover a great variety of topics.

3. August is the best time of year to obtain **good deals on the products** you need to buy in the Exhibit Hall.

4. It's not at every Convention that you can **experience a private Rodeo**. CDA is organizing one just for you.

5. Attending a convention can give you **new ideas to "spiff up" your office**. Even small changes in decor can make your patients leave the office with a positive attitude towards their next appointment.

6. Calgary 1992 is a unique opportunity to **experience a convention with your family**. This year, the spouses/guests' program is a very elaborate one.

7. Regardless of your children's age, there is a program for each of them. This year, a program has been developed for **three different age groups**.

8. August is the perfect time to review the last four months of 1992 with your team and therefore **anticipate any changes in your practice** that may be necessary for the coming year.

9. Attending the 1992 convention means **you are supporting your Association** which will strengthen Canadian dentistry and, ultimately, **make YOU stronger**.

10. The **best antidote for a slump is to do something about it**. Attending continuing education courses is a positive action that will teach you new skills and expand your horizons.

A Message Regarding The SCIENTIFIC PROGRAM

The Canadian Dental Association's Annual Convention is for every member of the dental team. The scientific program has been carefully developed to meet the needs of all dental professionals: dentists, dental hygienists, dental assistants, administrative personnel, dental technicians and dental students. They can all develop their professional skills and increase their working knowledge of dentistry by participating in THIS convention.

Calgary, Alberta
(Photo courtesy of Calgary Visitor's and Convention Bureau)

Calgary 1992

Limited attendance Pre-convention Courses

Saturday, August 29

Jennifer de St. Georges
Monte Sereno, California

A.M. "Handling Key Time Management Problems"

Time management is the key to a successful practice. Subjects to be covered:

- Scheduling problems
- Nine golden rules for handling office emergencies
- 24 benefits of a five-minute morning meeting

P.M. "Taking the Risk out of Risk Taking"

The lecturer will present participants with a prescription for tomorrow's practice.

- Giving patients quality of care
- Moving the dental practice to the next level of management

Saturday, August 29

Howard Martin, D.M.D.
Silver Spring, Maryland

"High Tech Root Canal – Flare, File, Fill"

Hands-on – Limited Attendance
Sponsored by CAULK CANADA

This course will increase your clinical experience in technological advances to do more endodontics with ease, effectiveness and efficiency.

- Caviendo ultrasonic endodontics
- Endotec & warm lateral condensation
- Control Safe end K/H file & handle
- M series automated canal orifice opener
- 2 in 1 endo access bur for penetration and opening
- Curved canal management
- One appointment endodontics

Saturday, August 29
Sunday, August 30

Jay R. Friedman, D.D.S.
Los Angeles, California

Gary R. O'Brien, D.D.S.
Los Angeles, California

"Surgical and Prosthetic Implants"

Hands-on – Limited Attendance
Sponsored by DENTSPLY/CORE-VENT

On the first day, the course will concentrate on the current knowledge and information relating to the surgical placement of cylindrical endosseious fixtures. Restorative implant dentistry through the use of different components will be reviewed. Evaluation and treatment planning procedures for single tooth, partially edentulous and completely edentulous patients will be discussed. Fabrication of stents will be shown. The methods of connection between natural teeth and implants, if needed, will be reviewed.

The second day of this course will feature surgical and prosthetic hands-on training.

Sunday, August 30

Terry Donovan, D.D.S.
Los Angeles, California

"Esthetic Restorative Dentistry and Materials Update"

Topics to be covered include:

- Essentials for soft tissue esthetics on fixed prosthodontics;
- Effective gingival displacement;
- New materials and techniques for fabrication of provisionals;
- Review of impression materials;
- New impression techniques;
- Solutions for fractured porcelain: metal bonding - mystery & myth;
- Current thoughts on bonding to tooth structure;
- Conservative esthetic techniques: bleaching, enamel microabrasion;
- Bonded porcelain: veneers, inlays/onlays, use in oral rehabilitation;
- Other current topics.

CDA Convention • Calgary 1992

Summary of Lectures and Events

SATURDAY, AUGUST 29

PRE-CONVENTION

Palliser Hotel – Alberta Room	*Palliser Hotel – Turner Valley Room*	*Palliser Hotel – Penthouse*
Dr. Jennifer de St. Georges Key Time Management Problems (a.m.) Taking the Risk out of Risk Taking (p.m.) DDS-ASST-HYG-ADM	**Dr. Jay R. Friedman & Dr. Gary O'Brien** Surgical and Prosthetic Implants – Lecture DDS	**Dr. Howard Martin** High Tech Root Canal – Flare, File, Fill DDS

SUNDAY, AUGUST 30

Dr. Terry Donovan Esthetic Restorative Dentistry and Materials Update DDS-ASST-HYG	**Dr. Jay R. Friedman, Dr. Gary O'Brien & Dr. Neznick** Surgical and Prosthetic Implants – Hands-on DDS	

LEGEND

DDS – Dentist
ADM – Administrative Personnel
ASST – Assistant
HYG – Hygienist
TECH – Technician

MONDAY, AUGUST 31

	Calgary Stampede Park – Room 1	*Calgary Stampede Park – Room 2*	*Calgary Stampede Park – Room 3*
8:00 to 10:00	**University of Alberta** **Dr. Charles Baker** Contemporary Radiographic Techniques assisting in Implant Utilization **Sharon Compton** "Plaque-Free" Implant Fixture **Dr. Christopher Robinson & Dr. Keith Compton** Complications with Dental Implants DDS-HYG	**Dr. Robert Boyd** Post-Orthodontic Occlusion ***GRIEVE MEMORIAL LECTURE*** DDS	**Dr. Roy Page** Prevalence, Progression and Etiology of Periodontal Diseases DDS-ASST-HYG
10:30 to 12:30		**Dr. Ken Neuman** Cosmetic Imaging – The Ultimate Communication Tool DDS-ASST-HYG-ADM	**Dr. Roy Page** Differential Diagnosis of Periodontal Diseases DDS-ASST-HYG
14:00 to 16:00	**Jack Stockton** Dental Practice Economics DDS-ASST-HYG-ADM-TECH	**Dr. Alan Milnes** Managing Children's Behaviour in the Dental Office DDS-ASST-HYG	**Dr. Roy Page** Differential Diagnosis of Periodontal Diseases DDS-ASST-HYG

TUESDAY, SEPTEMBER 1ST

	Calgary Stampede Park – Room 1	*Calgary Stampede Park – Room 2*	*Calgary Stampede Park – Room 3*
8:00 to 10:00	**CDHA Workshop Report** HYG	**Dr. Ronald Jordan** Anterior Composite Materials – An Update DDS-ASST-HYG	**Anita Jupp** Practice Management for the 90's DDS-ASST-HYG-ADM-TECH
10:30 to 12:30	**Dr. Joel White** Research and Lasers: Clinical Effects DDS-ASST-HYG-ADM	**Dr. Ronald Jordan** Dentin Bonding Agents – An Update DDS-ASST-HYG	**Dr. Mary Krywulak** Pediatric Oncology Patient DDS-HYG
14:00 to 16:00	**Dr. Harold Goodis** Lasers in Endodontics DDS-ASST-HYG-ADM	**Dr. Steven Lewis** Esthetics and Osseointegration DDS-ASST-HYG-ADM-TECH	**Annette Linder** Redefining the Recall Appointment DDS-ASST-HYG

WEDNESDAY, SEPTEMBER 2ND

	Palliser Hotel – Alberta Room	*Palliser Hotel – Oval Room*	*Palliser Hotel – Turner Valley Room*
8:00 to 10:00	**Annette Linder** Hygiene Department Development DDS-ASST-HYG	**Dr. Brian Whitestone** Surgical Management of Oral Pathology DDS	**Dr. Terry Morgan** Coronal Radicular Build-ups – Current Concerns DDS

CDAA Program

Friday, August 28th
CDAA Executive and Luncheon
Saturday, August 29th
CDAA Executive and Luncheon
Monday, August 31st
CDAA Hospitality Suite
Tuesday, September 1st
CDAA/AA Awards Gala

CDHA Supplementary Program

Sunday, August 30th

Workshop "A"
Continuing Education – What can it do for you?
Workshop "B"
Supervision – Interpretations and Projections

CDA Golf Classic – Friday, August 28th — Kananaskis Golf & Country Club

Opening Ceremony – Sunday, August 30th, 5 p.m. - 7 p.m. — Centre for Performing Arts

Fun Run – Monday, August 31st, 4:30 p.m. — Run departs from Downtown Y

Stampede Rodeo Night – Monday, August 31st, 6 p.m. - 1:30 a.m. — Stampede Park

Western Formal Gala – Tuesday, September 1st, 7 p.m. - 1 a.m. — Calgary Convention Centre

TABLE CLINICS – Monday, August 31st, 2 p.m. - 4 p.m. — Table Clinics Room

MONDAY, AUGUST 31

	Calgary Stampede Park – Room 4	*Calgary Stampede Park – Room 5*	*Calgary Stampede Park – Room 6*	
8:00 to 10:00	**Lauralynn Mealing** Home Computers: Opening Windows DDS-ASST-HYG-ADM-TECH	**Dr. Donald Yu** How to Feel, Fill, Thrill Accessory Canals DDS	**Dr. Nathan Birnbaum** Bonded Restorations for Posterior Teeth – A comparison of Available Systems DDS	EXHIBITION
10:30 to 12:30	**Sharon Wood** Mountains of Challenge ***CFDE Lecture*** DDS-ASST-HYG-ADM-TECH	**Dr. Claude Lamarche** Les clés du succès en prothèse complète (French program) DDS	**Thomas H. Olsen** Tax Tips and Traps for Professionals DDS	
14:00 to 16:00	**John Molinari** Hepatitis B and AIDS Challenges to Infection Control DDS-ASST-HYG	**Clyde A. Harris and Cyril J. Gallant** CDIP and CDA RSP: Your Best Insurance and Retirement Investment Choice DDS		

TUESDAY, SEPTEMBER 1ST

	Calgary Stampede Park – Room 4	*Calgary Stampede Park – Room 5*	
8:00 to 10:00	**Dr. John McDougall** Nutrition for the Dental Patient DDS-ASST-HYG-ADM-TECH	**Dr. Claude Lamarche** Prothèse partielle amovible : conditions actuelles (French program) DDS	EXHIBITION
10:30 to 12:30	**Dr. John Molinari** Infection Control in a Changing World DDS-ASST-HYG-ADM	**Edward Kisling** Collecting Accounts Receivable DDS-ASST-HYG-ADM-TECH	
14:00 to 16:00	**Dr. John McDougall** Nutrition in the Cause and Treatment of Disease DDS-ASST-HYG-ADM-TECH	**Vanik Jinoian** The In-Ceram, All Porcelain Crown and Bridge System DDS	

NEW ADDITION

George Tysowsky,
DDS, MPH

Tuesday, September 1
10:30 - 12:30

Current Techniques on Resin Bonded Restorations

WEDNESDAY, SEPTEMBER 2ND

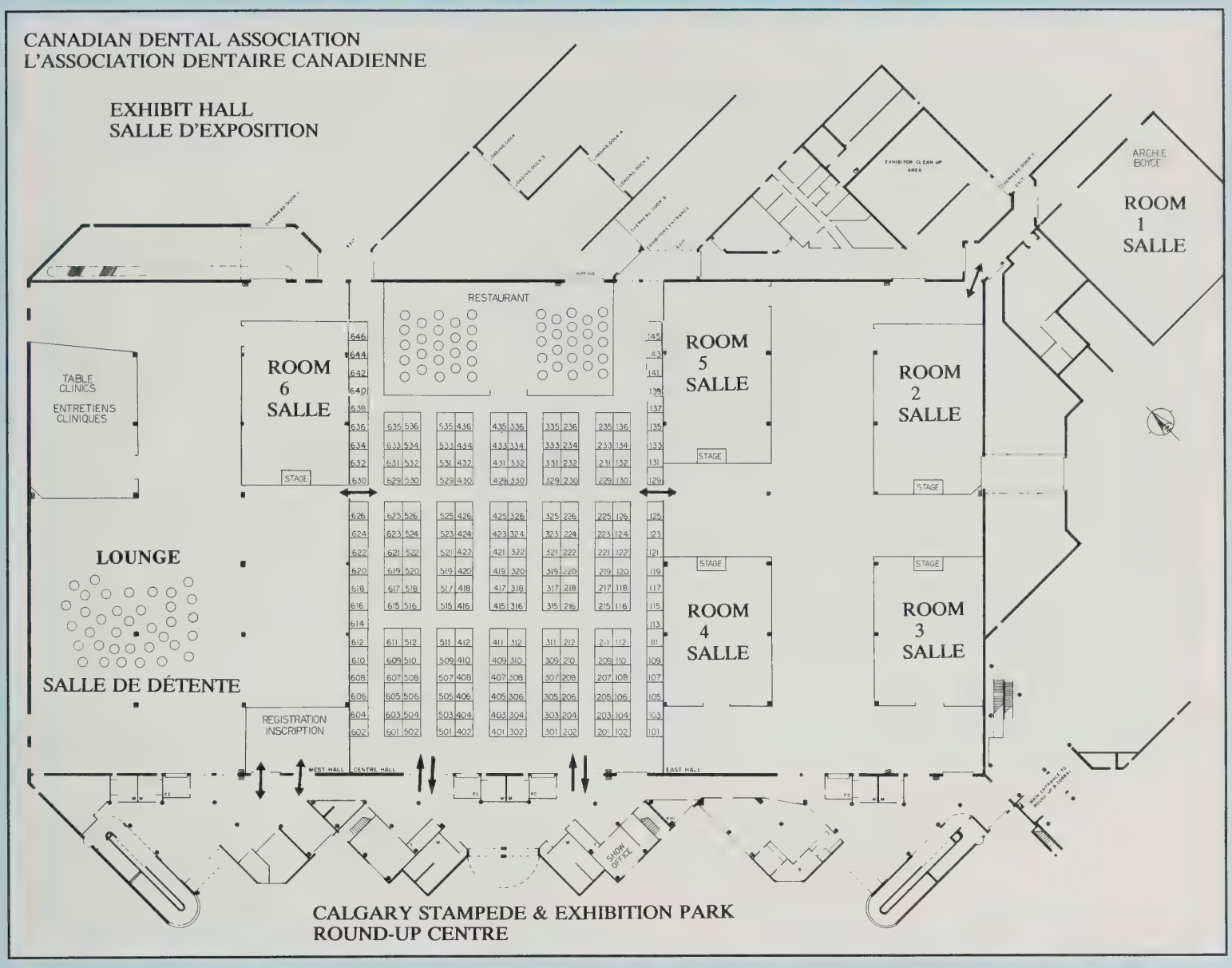
	Palliser Hotel – Marquis Room
8:00 to 10:00	**Dr. Neil Farrell** Fluoride DDS

CDA Convention • Calgary 1992

EXHIBITORS' LIST

Name of exhibitor	Booth #
3-M Canada Inc.	435
A	
A-Dec, Inc.	123, 125
Abel Computers Ltd.	521
Adtel Inc.	636
Advanced Dental Concepts	507
Amadent/American Medical and Dental Corp.	432
American Dental Association	409
Ash Temple Limited	102, 104, 106, 108, 110, 112, 201, 203, 205, 207, 209, 211
Astra Pharma Inc.	515
Aurum Crest Dental Laboratories Ltd.	202, 204, 206, 208, 301, 303, 305 307, 309
Autopia Computer Products	623
B	
Bank of Montreal	119
Bausch & Lomb Canada Inc.	508
Belmont Takara Co. Canada Ltd.	324, 326
Benson/Porter	533
Bisco Dental Products	616
Bottom Line Dental and Medical Supp. Inc.	620
Brasseler Canada Inc.	429
Buffalo/Bolton Dental Mfg. Inc.	215
Business & Message Center	124, 126, 223, 225
C	
Calicher Communication Systems Inc.	518
Canada Microsurgical Ltd.	631
Canadian Dental Association Museum	222
Canadian Dental Association	216, 218, 220, 315, 317, 319
Canadian Dental Suppl. Ltd.	330, 332, 334
Canadian Freightways Limited	610
Canadian Surgical Inc.	141, 143
Car Raffle	212, 311
Caulk Canada	416, 418, 420, 422
CDA Leasing/ Location l'ADC	646
CDSPI	316, 318, 320
Chartwell Industries (Canada) Limited	431
Central Dental Limited	609
Chinook Orthodontics Ltd./AFTCO	121
Church & Dwight Ltd./Ltée	401
Clinical Research Dental Supplies	618
Colgate Hoyt/Gel-Kam	516
Colgate Palmolive Canada, Inc.	410, 412
Coltene/Whaledent	411
Complete Dental Lab Services Ltd.	509
Creative Play Environments Mftg.	517
D	
Dansereau Health Products Inc.	532
Danville Engineering	607
Degussa Canada Ltd.	323, 325
Den-Mat Corporation	625
Den-Tal-Ez Inc.	601, 603, 605
Dental Plus	608
Dentin Group	612
Dentsply Canada Ltd.	415, 417, 419
Dentsply/Core-Vent Implant Division	421
Designs for Vision, Inc.	236
Direct Dental Funding Ltd.	115
DMS Dental Management System	107
Duro-Test Canada Inc.	403
E	
Encyclopaedia Britannica/ North America	131
Exan Consolidated Transactions Inc.	122, 221
F	
Frank W. Horner Inc.	423, 425
Fine Arts Dental Lab	111
G	
GC America	
Genie Computers – Ho & Assoc. Computer Systems Ltd.	614
Germiphene Corporation	219
H	
Healthco (Canada) Ltd.	402, 404, 406, 424, 426, 501, 503, 505, 523
Health Group Financial, Division of Confederation Leasing Ltd.	430
Henry Schein Inc.	634
Hoechst Canada Inc.	113
Hu-Friedy Mftg. Company	224, 226
Hygenic Canada	534
I	
I Contact Film & Video	117
IMTC Systems Inc. DPM Software	135
Interprovincial Dental Labs	626
Ivoclar North America Inc.	333, 335
J	
John O. Butler Company	109
J.F. Jelenko & Co.	405
K	
KCI Distributors	519
Kerr Canada	130, 132
Kilgore International Inc.	329
Kodak Canada Inc.	336
L	
Lares Research	408
Linda L. Miles & Associates	308
M	
M&CC Cabinets and Controls	529, 531
Matrx Medical Inc.	617
Maxident Dental Management Systems	644
McBee Systems of Canada	118
McNeil Consumer Products Company	506
MDT Corporation	310
Medi-Dent Services Inc.	510, 512
Medigas	619
Midwest Dental Products Corporation	116
Miles Inc. Dental Products	611
N	
Nakamun Financial Group	621
Nobelpharma Canada	230, 232
O	
Oral-B Laboratories Inc.	526
P	
Panoramic Corporation	502, 504
Pfingst & Co. Inc.	520
Pfizer Canada Inc.	233, 235
Premier/ESPE-Premier Canada Inc.	434, 436
Professional Practice Builders Inc.	101, 103
Professional Practice Sales Ltd.	331
R	
Regent Hospital Products Ltd.	234
Riker/3M Canada Inc.	433
S	
Safeguard Business Systems Ltd.	629
Safeskin Corp.	622
Sanofi-Winthrop Inc.	524
Saskan Amalgam Alloys	105
Sci-Can/Div. of Lux & Zwingenberger	229, 231
Septodont Inc./Novocol	312
Shaw Laboratories/ Westan Dental Products Group	134
Shofu Dental Corporation	322
Siemens Electric Limited	302, 304, 306
Sinclair Dental Co. Ltd.	136
Southern Dental Industries	139
Sulcabrush Inc.	120
Swiss NF Metals Inc.	133
Syntex Inc.	145
T	
Teledyne Water Pik	129
Times Mirror Professional Publishing	407
Toronto Dominion Bank	615
Trans Canada Dental Ltd.	633
Troll Plastics Inc.	522
Turbine Industries	137
U	
Unident Limited	530
University of Alberta	217
Upjohn Consumer Products	321
V	
Vacudent International	630, 632
Van R/Cadco/Clive Craig	535
W	
Warner Lambert Canada Inc.	602, 604, 606
WMS Enterprises	638, 640
Wright Dental Canada Limited	511
Z	
Zadall Systems Group Ltd.	635

CDA Convention • Calgary 1992



WESTERN HOSPITALITY ALL THE WAY !

A Chuckwagon Breakfast will be offered to all CDA delegates on Monday and Tuesday by Aurum Ceramics / Classic.

WHAT A WAY TO START THE DAY !

CONTINUING EDUCATION CREDIT CERTIFICATION

NEW THIS YEAR!

To help dentists, dental hygienists and dental assistants obtain continuing education credits, CDA Conventions will certify attendance at individual lectures during pre-convention and convention.

Calgary 1992

Spouses' Program

The sheer variety of this program will convince you to register today!

MONDAY, AUGUST 31, 1992

07:00	Breakfast
10:30 - 12:30	Sharon Wood, the first North American woman to reach the summit of Mount Everest in 1986, will present a compelling true story about beating the odds in "Mountains of Challenge".
12:30 - 16:00	Rotary House – Stampede Grounds: Hors d'oeuvres and wine will be served against a background of music played by Harpist Debra Nyack. Later, we will bring the shopping to you! Local artists and artisans will display their dazzling creations for your shopping pleasure.

TUESDAY, SEPTEMBER 1, 1992

07:00 - 08:00	Breakfast
08:00 - 10:00	Helen Vanderburg, world swimming champion and a fitness professional, member of the Canadian and International Sports Hall of Fame, will present "Building a Lifestyle for Success". The topics will include: characteristics of high performers, attitude, energy and goal-setting.
10:00 - 12:00	Transfer by bus to Spruce Meadows and tour this world-class equestrian centre
12:30 - 12:50	Presentation by Brenda Finley, co-producer and host of Calgary Television's daily news program, the second most watched late night local news program in the country.
12:50 - 14:00	Lunch accompanied by the flute and guitar duo "Flute Plus"
14:00 - 14:30	Entertainment by Eddie and the Earthtones
15:00 - 15:30	Depart Spruce Meadows for Calgary

Programs for Tots, Children and Teens

Different Activities for each Age Group!

TOTS' PROGRAM (ages 2-4)

Monday, August 31st and Tuesday, September 1st

A drop-off centre at the downtown YM-YWCA has been reserved for your convenience. While you are enjoying the spouses program and doing some shopping in Calgary, your tots will be playing games and having great fun, under the professional supervision of YWCA day-care providers.

CHILDREN'S PROGRAM (ages 5-12)

Monday, August 31st

07:45 - 08:15	Pick up at Convention Hotels (parents must sign in their children)
08:30	The Morning Show
09:00	Swimming at the YWCA
10:30	Visit to the Calgary Energium
Noon	Lunch at the top of the Calgary Tower
13:30	Rollerskating (Lloyd's Rollercade)
16:00 - 17:30	Return to YWCA and drop off at Convention Hotels (parents must sign out their children)

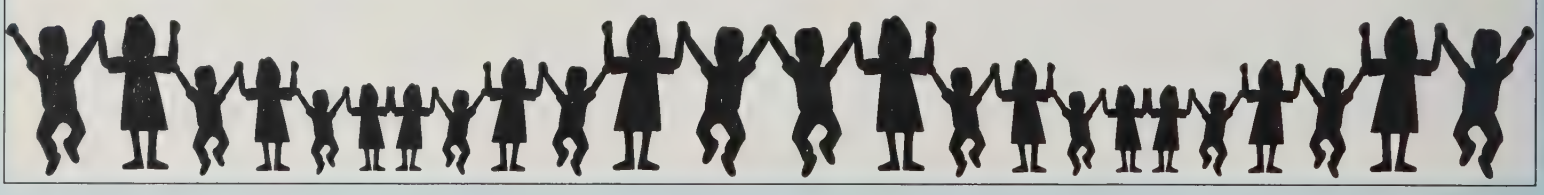
Tuesday, September 1st

07:45 - 08:15	Pick up at Convention Hotels (parents must sign in their children)
08:30	The Morning Show
09:00	Bus pick up for Calaway Park
09:30	Visit the Flintstones in Calgary's Bedrock theme park. Rides, live shows, and many more attractions. Snack.
	BBQ LUNCH
16:00 - 17:30	Return to YWCA and drop off at Convention Hotels (parents must sign out their children)

TEENS' PROGRAM (ages 13-16)

Monday, August 31st and Tuesday, September 1st

The Alpine Club of Canada offers overnight mountain adventure for your fun-seeking, active teens! Teens will be bussed from Calgary to Lake O'Hara and Roger's Pass where they will experience the beauty of the great Alberta outdoors, accompanied by professional guides. Registration fees include food, accommodations, transportation, guides and chaperones.



NEW THIS YEAR!

GOLF THE KANANASKIS ... at the "C.D.A. Golf Classic"

Sponsored by Aurum Ceramic/Classic

FRIDAY, AUGUST 28, 1992

Enjoy the spectacular beauty of the Kananaskis Golf & Country Club!

The registration fee covers green fees, power cart and steak barbeque. In addition, all registered golfers will receive a registration package including an AM/FM stereo cassette, golf hat, golf balls, tees and ball markers!

Dentists participating in the C.D.A. Golf Classic will have the opportunity to win a "Golf Getaway in Palm Desert". The draw will be made at the convention.

To register, see the REGISTRATION FORM in this issue.

Attendance is limited!

Ash Temple/Servident presents —

THE 1992 OPENING CEREMONY

SUNDAY, AUGUST 30 • 5:00 - 7:00 p.m.

This colourful and animated event will be held at Calgary's elegant Centre for Performing Arts.

The star-studded variety show will feature the Young Canadians, an energetic group of singers and dancers who have earned top billing at the Stampede's Grandstand Show – and an international reputation as first-class entertainers.

Sharing the spotlight with the Young Canadians is country vocalist Cindy Church and her band, the Rhythm Rangers. A native of Alberta, this performer is becoming known nationwide for her unique vocal stylings.

And there's more! Space is limited, so register today!

1992 CANADIAN DENTAL ASSOCIATION ANNUAL CONVENTION

August 29 - September 2, 1992 • Calgary

Hotel Reservation Form

Please check appropriate category:

❑ Dentist ❑ Hygienist ❑ Assistant ❑ Office Personnel ❑ Exhibitor (Company name: _____)

❑ Other (please specify) _____

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

Telephone: (____) _____ (____) _____
(Residence) (Office)

Type of Room:

❑ Single ❑ Double ❑ Twin ❑ Other (please specify) _____

Special Requests: _____

Indicate your hotel choice* (by numbering the boxes):

❑ Skyline Plaza Hotel (CDA Headquarters) ..... $ 105.00 single / double

❑ The Palliser (CDA Headquarters) ..... $ 110.00 single / double

❑ The International ..... $ 100.00 single / double
(This is a suite property. Price is based on double occupancy (2 people). $15. extra for each additional person)

❑ Delta Bow Valley ..... $ 115.00 single / double

❑ The Westin Hotel ..... $ 125.00 single / double

* Prices do not include GST or PST (5% PST in Alberta)

Arrival Date: _____ **Arrival Time:** _____ **Departure Date:** _____

All changes and/or cancellations must be made through CDA Conventions (613) 523-1770.

In order to reserve a room, a guarantee for the first night is essential. The guarantee will apply to the first night ONLY.
To cancel your reservation advise the CDA at least three (3) days prior to your arrival.

❑ MasterCard ❑ American Express ❑ VISA Card Number: _____ Expiry Date: _____

Signature: _____

Send Reservation Form to: CDA Conventions, Canadian Dental Association,
1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

DEADLINE for Reservations: **July 10, 1992**

Making your Airline Reservations

Air Canada

Air Canada has been appointed the sole official carrier for the Canadian Dental Association 1992 Annual Convention in Calgary. Special arrangements have been made with Air Canada to offer convention participants discounts on air fares. To take advantage of this service, you must call Air Canada's Convention Central when booking your tickets (your travel agent can call on your behalf). Dial **1-800-361-7585** and quoting **Event No. CV920421**, you can benefit from savings up to 65% on the regular Hospitality Class, with minimum guaranteed savings of 15% on the full Hospitality and Executive Class services.

Not to be overlooked, Air Canada has graciously offered two economy class return tickets good for travel on any Air Canada serviced destination (except Bombay and Singapore). This will be the prize awarded in our Advance Registration Draw. To be eligible for the draw, dentists and dental team members must register for the convention **before July 10, 1992**.

Thanks to all our sponsors and supporters!

CDA Conventions extends its sincere gratitude to all the companies that are exhibiting this year – without their support, this convention would not be possible. In addition, a number of exhibitors and organizations have provided sponsorship, special gifts and prizes, all of which will help to contribute to the success of the 1992 convention. CDA Conventions, on behalf of the Canadian Dental Association, wishes to thank the following companies:

Air Canada
American Dental Laser
Ash Temple/Servident
Aurum Ceramic/Classic Dental Laboratories
Caulk Canada
CDSPI
Coltene/Whaledent
Corevent/Dentsply
Degussa
Exan
Healthco
John O. Butler Company
Nobelpharma

Special thanks to the following organizations for sponsoring lectures:

Canadian Association of Orthodontists
Canadian Fund for Dental Education
University of Alberta – Faculty of Dentistry

ANNUAL FUN RUN

MONDAY, AUGUST 31
Run starts at 4:30 p.m.

Be a tourist ... on the run!

This Fun Run will allow you to acquaint yourselves with the downtown section of the top rated pathway system in Calgary!

The course follows the tree-lined banks of the Bow River offering an excellent running surface free from vehicular traffic ... a jogger's paradise.

No official time will be kept ... so you can run just for the fun of it!

All participants will receive a T-shirt and will qualify for prizes that will be drawn at completion of the run.

REGISTER TODAY!

WIN A JEEP!

A jeep that is not only built to handle the "rough stuff" ... but is also built for comfort and convenience for smooth city driving.

This beautiful **"all terrain" Jeep YJ 1992** can be YOURS!

All you have to do is pre-register for the 1992 CDA Convention and you will receive your draw tickets by mail with your delegate package.

This draw is sponsored by
Aurum Ceramic/Classic.

GST Registration Number: R016845209

CANADIAN DENTAL ASSOCIATION CONVENTION

Calgary • August 29 - September 2, 1992

PRE-REGISTRATION FORM • Please PRINT

ONE FORM PER PERSON. To ensure your requests are accommodated – ***register early.*** Advance registrations will be accepted until **July 10, 1992** after which they will be returned to the sender. Each on-site registration will be subject to a $27.00 administrative fee (GST included).

SURNAME: _____ FIRST NAME: _____ SEX: M F

ADDRESS: _____

(Street) (City) (Province)

_____ TELEPHONE: (___) _____ (___) _____

(Postal Code) (Office) (Residence)

CDA Membership Number: _____ License Number: _____

PRE-CONVENTION • AUGUST 29, 30 • LIMITED ATTENDANCE

SATURDAY, AUGUST 29

Jennifer de St. Georges – *PRACTICE MANAGEMENT* – Lecture
Dentist ..... $ 155.00 _____
Staff ..... $ 70.00 _____

Howard Martin, D.M.D. – *ENDODONTICS* – Hands-on Program
Dentist (limited to 40 participants) ..... $ 185.00 _____

SUNDAY, AUGUST 30

Terry Donovan, D.D.S. – *RESTORATIVE* – Lecture
Dentist ..... $ 155.00 _____
Staff ..... $ 70.00 _____

Jay Friedman, D.D.S. & Gary O'Brien, D.D.S. – *IMPLANTS* – Hands-on Program
•TWO-DAY COURSE: SATURDAY AND SUNDAY•
Dentist (limited to 40 participants) ..... $ 350.00 _____

* GST is not charged on Pre-convention courses / Lunch is included in Pre-convention courses.

CONVENTION • AUGUST 31, SEPTEMBER 1 and SEPTEMBER 2 (a.m.)

❑ DENTIST
Member, CDA or Alberta Dental Association ..... $ Nil ___—___
Non-member, Others ..... (7% GST included) $ 190.00 _____
Includes: Scientific sessions, exhibits

❑ DENTAL HYGIENIST
CDHA Member ..... (7% GST included) $ 80.00 _____
Non-member ..... (7% GST included) $ 115.00 _____
Includes: Scientific sessions, exhibits

❑ DENTAL ASSISTANT
CDAA Member ..... (7% GST included) $ 80.00 _____
Non-member ..... (7% GST included) $ 115.00 _____
Includes: Scientific sessions, exhibits

❑ TECHNICIAN ..... (7% GST included) $ 80.00 _____
Includes: Scientific sessions and exhibits

❑ ADMINISTRATIVE PERSONNEL ..... (7% GST included) $ 80.00 _____
Includes: Scientific sessions and exhibits

❑ STUDENT ❑ Dentist ❑ Hygienist ❑ Assistant ..... $ Nil ___—___
Includes: Scientific sessions and exhibits

❑ SPOUSE / GUEST ..... (7% GST included) $ 125.00 _____
Includes: Scientific sessions, exhibits and Spouses' Program.

❑ TOTS / CHILDREN / TEENS ..... (7% GST included) $ _____
Tots – Drop-off Centre $ $3.00 /hourly ☐ Yes ☐ No
Children 5 - 12 years — $80.00 / Teens 13 - 16 years — $140.00 _____ /_____

❑ SOCIAL EVENTS
Sunday – Opening Ceremony – Subject to space availability
Will attend ❑ Yes ❑ No ..... $ Nil _____
Monday – Stampede Rodeo Night
(per person) ..... (7% GST included) $ 50.00 _____
Tuesday – President's Gala – "Western Formal"
(per person) ..... (7% GST included) $ 70.00 _____

❑ FUN RUN – Monday A.M. ..... (7% GST included) $ 20.00 _____

❑ GOLF TOURNAMENT – Friday, August 28 H/C _____ AVG. _____
..... Doctor – including golf (7% GST included) $ 80.00 _____
..... Spouse / Guest – exluding golf (7% GST included) $ 50.00 _____

❑ CDHA Reception and Banquet –
Tuesday, September 1, 6:00 p.m. ..... (7% GST included) $ 50.00 _____

❑ CDAA/ADAA Awards Gala –
Tuesday, September 1, 6:00 p.m. ..... (7% GST included) $ 25.00 _____

TOTAL ..... $ _____

The above registration fees are paid by _____

❑ I wish to pay the above total by credit card: ❑ MasterCard ❑ VISA ❑ AmEx

Card#: _____ Expiry date: _____

Signature of Cardholder: _____

❑ I enclose a cheque **payable to the Canadian Dental Association.**
Post-dated cheques will *not* be accepted.

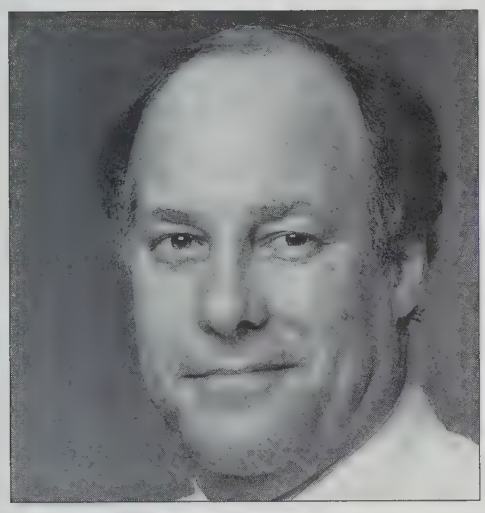
ACCOMMODATION
☐ Hotel Registration Form enclosed for _____ (number of) rooms.
☐ Do not require a room
☐ Other arrangements made

Mail registration form with payment to:
1992 CDA Convention
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

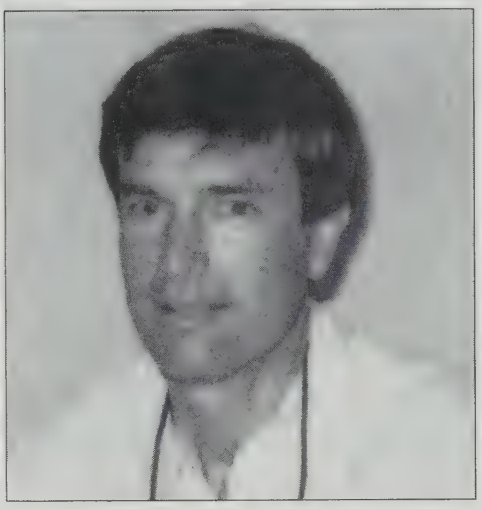
CANCELLATION POLICY:
Cancellation received, in writing, on or before July 10, 1992 — full refund.
Cancellation received, in writing, after July 10, 1992 — subject to a 25% administrative charge.
No refund after August 9, 1992.

Dentists, Assistants, Hygienists, Office Personnel & Technicians registering by July 10, 1992 will be eligible to win two tickets anywhere Air Canada flies in Europe and North America!

Dentists speak out for the Canadian Dentists' Insurance Program



Dr. Bob Brandon



Dr. John Hucks

Dr. Roger Charette

We are served by a staff whose depth of caring and empathy and professionalism is, in my opinion, second to none.

These are the sentiments of Dr. Bob Brandon of London, Ontario, one of many dentists who recently expressed their appreciation of Canadian Dental Service Plans Inc. (CDSPI).

Some began to realize just how valuable their Canadian Dentists' Insurance Program (CDIP) coverage was, to say nothing of the service offered by CDSPI, after being helped through a difficult time. Others came to the same conclusion after they compared CDIP with what's being offered by private insurers. Here are the stories of a few people who were kind enough to share their experiences:

Dr. John Hucks
Peterborough, Ontario

Without my CDIP disability insurance, I don't know how our family would have coped after our near-fatal car crash. It was nearly a year before I was able to return to work full time.

When my family and I experienced a serious car accident, I was badly injured. Only through the support of friends and family were we able to rebuild the precious life we are blessed with today.

I remember the kindness of the police officers at the scene, the hospital staff, and the people at CDSPI. They made filing my claim quite painless and offered nothing but enthusiasm during my difficult rehabilitation.

I've been with CDIP since 1969, when I first started my practice, and I have no intention of leaving. From my experience, I feel that it's the best plan available for dentists.

Dr. Roger Charette
Ville Mont Royal, Québec

When I had my heart bypass operation, as you can imagine, I was worried about a lot of things. Fortunately, one thing I did not have to worry about was my insurance claim.

I'm so grateful that I was prepared with insurance, so that I could focus my energy on recovering from my operation instead of worrying about my practice and other obligations. My CDIP insurance provided an income for me and took care of my office expenses until I was able to resume my practice.

The friendly help I received from CDSPI really made a difference for me. That's why I am pleased to have this opportunity to pass on the good news about CDIP to other dentists.

I have to commend CDA for having this insurance for their members – it shows they care.

Dr. Howard Newman
Pickering, Ontario

I am convinced that the people servicing the plan at CDSPI really know their business. I invite other dentists to investigate what's out there and draw their own conclusions.

Like many dentists this year, I was hit with a premium increase. And although I've been a CDIP participant for almost 20 years, I decided to talk to some private insurers. I found that no one else offers the range of coverage that CDIP does. And no one understands my needs as a practising dentist better than CDSPI.

I didn't switch. In fact, I decided to upgrade some of my coverage after a really informative discussion with CDSPI representatives. They clarified a lot of things for me.

Dr. Donald Beauprie
Deep River, Ontario

When a sink flooded and caused water damage to my office, CDSPI and the insurance carrier handled the claim promptly and smoothly so there was minimal inconvenience to my practice and my patients.

I have always received good service from CDSPI and, for me, they have been an excellent source of information. Although I have been contacted by many

What if the people who built cars were the same people who bought them?

What if carmakers had to drive, and live with, the cars they made?

For one thing, cars would be safer. They'd have steel safety cages and collision-absorbing crumple zones, front and rear. They'd have driver's side air bags and anti-lock braking systems.

Yet even then they'd be hard-pressed to equal the outstanding safety record of a Saab, which is regarded as one of the safest vehicles on U.S. roads.** Besides protecting people better, cars would protect themselves better. Warranties would be longer, like the 6-year/120,000 km† warranty all Saabs offer now. And cars would require less scheduled maintenance, less often, as Saabs do now.

The Saab 900 Series
*Starting from $24,965**

The Saab 9000 Series
*Starting from $31,795**

For more information,
call 1-800-263-1999.

Cars would also be less boring. Engines would be spirited, suspensions surefooted, and steering systems would communicate with, rather than insulate you from, the road. Much like Saab.

But cars would also be much more

*MSRP for a base model 1992 Saab 900 3-door equipped with 5-speed manual transmission is $24,965. MSRP for a base model 1992 Saab 9000 5-door equipped with 5-speed manual transmission is $31,795. PDI included.
the Personal Injury Protection coverages. As reported by the Highway Loss Data Institute, a U.S. organization of more than 250 companies that monitors safety through actual accidents on the road in its

WE BUILD CARS AS THOUGH WE WERE BUYING THEM, NOT SELLING THEM.

flexible. A performance car would also perform at shopping malls, in car pools, or wherever else work needs to be done – like the Saab 9000S.

Fold down its split rear seats, and it will effortlessly carry home large and lengthy items. Fill it with a family, and it will chauffeur them around in a sea of space and comfort.

Finally, if builders were also buyers, they'd be in no great hurry to overcharge themselves. So prices would be more Saab-like. (See the box on the left.)

In short, in this highly improbable scenario, all cars would be complete cars, compromising no one virtue for the sake of another.

We don't advise waiting for that to happen. Instead, we invite you to visit your nearest Saturn, Saab, Isuzu dealer, where cars are built by people as though they were buying them – and are sold in precisely the same spirit.

1992 Saabs now include a comprehensive roadside assistance program. See your dealer for details.

SAAB

Freight is $625 per vehicle. GST, PST, insurance, license fees and any other taxes are not included. See dealer for details. Dealer may sell for less. **Based on frequency of insurance claims filed in the United States under 1990 report. †6 yrs. or 120,000 km, whichever occurs first. This limited warranty covers major components only and includes a deductible. Certain limitations apply. See your Saab dealer for complete details.

insurance agents recently, I will continue to insure with CDIP...

These are just a few examples of how CDSPI's services have helped CDIP members – not only giving them confidence and peace of mind in the face of unexpected events, but also providing important ongoing services that add value to your insurance program.

For example, where else can you get comprehensive information without sales pressure? CDSPI's personal service representatives help you to understand the various insurance policies and options before buying. CDSPI also provides ongoing support, such as informative booklets, a toll-free inquiry hot line and free insurance review – we'll arrange for an independent consultant to look over policies and proposals you may have from other insurers and give you a reliable, expert opinion.

Hopefully, you will never need to make a claim, but if you do, you can count on professional, helpful service from CDSPI. We will be right there beside you to answer questions, help you fill in forms and expedite your claim.

Best of all, CDIP offers a full range of 12 plans, one of the most comprehensive insurance programs available to any profession in Canada. The dental profession has this advantage because CDSPI is constantly negotiating for better and more cost effective coverage, and more options specially designed for dentists.

Now, compare this kind of ongoing service, the high level of expertise, and the comprehensive range of dental profession-specific plans to what is being offered by private insurers. Do they really understand your needs, or do they lump you in a broad category with other professionals? Are they acting in your best interest? Can they offer the range of products and support that your own organization can? Probably not.

CDSPI's commitment to service shows that we really care for the dental profession. That's because we are owned and operated by dentists for dentists. And it shows in the way we do business.

CDIP is sponsored by CDA and the co-sponsoring provincial associations.

HELP!

The *Journal* has depleted its stock of March 1991, Vol. 57, No. 3 back issues. Readers who have copies they no longer require are requested to send them to:

CDA Journal
c/o The Editor
1815 Alta Vista Dr.
Ottawa, Ontario
K1G 3Y6

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at May 31, 1992	April 30, 1992
Bond & Mortgage Fund	94.54347	91.75129
Common Stock Fund	17.76105	17.33879
Money Market Fund	60.75029	60.32384
Balanced Fund	35.55256	34.65549

G.I.C. Fund Term	*Interest rates as at May 31, 1992	April 30, 1992
1yr	6.85%	7.35%
2yr	7.60%	8.10%
3yr	8.15%	8.60%
4yr	8.35%	8.85%
5yr	9.10%	9.35%

*(*rates subject to change without notice.)*

Total Assets (market value) of the Plan as of

May 31, 1992	April 30, 1992
$163,981,543.40	$161,305,629.80

For further information:

Write:

CDSPI
Retirement Services Dept.
Suite 710
100 Consilium Place
Scarborough, Ontario
M1H 3G8

or phone, toll free:

416-296-9401	Metro Toronto
1-800-561-9401	Service in English Extensions: 252, 253, 254
1-800-665-9401	Service in French
1-416-296-8920	Fax.

Implant Dentistry
A Conversation With George Zarb

Dr. George Zarb is professor and chairman of the department of prosthodontics at the University of Toronto. He received his undergraduate training in Malta and graduate training in operative dentistry and prosthodontics at the University of Michigan and Ohio State University. He is a fellow of the Royal College of Dentists of Canada.

Dr. Zarb recognized, early on, the prosthodontic potential of the osseointegration investigations of Dr. Per-Ingvar Branemark, and was instrumental in conducting clinical replication studies at the University of Toronto. In 1982, Dr. Zarb chaired the Toronto Conference on Osseointegration in Clinical Dentistry, paving the way for sound, scientific teaching and clinical practice in this field.

Journal: *Dr. Zarb, can you remember the first implant you ever placed?*

Dr. Zarb: Yes I can, it was in 1978 and the implant is still in place. At the dental faculty in Toronto, we never attempted any implants in humans that were not an outgrowth of the Branemark experience.

Journal: *Have implants not been around for many, many years – long before 1978?*

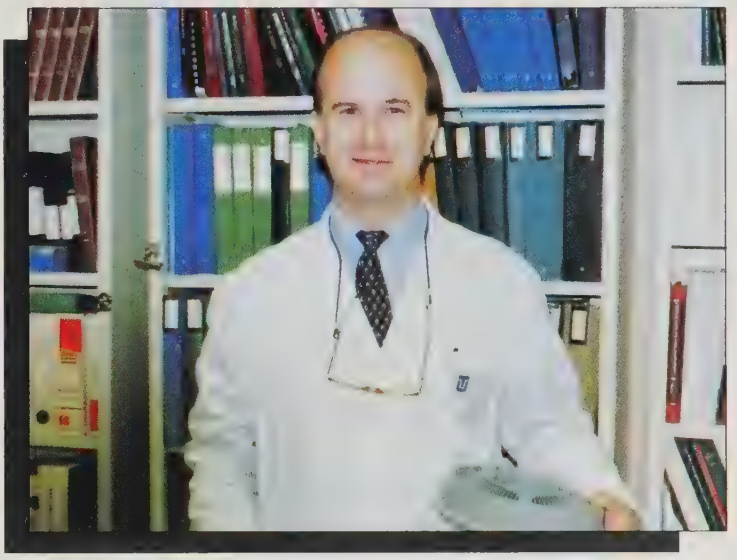
Dr. Zarb: Oh yes, as far back as the ancients. Archeological excavations in different parts of the world, particularly in the Mediterranean areas, have unearthed specimens of skulls where metallic components had been placed in the jawbones to act as tooth analogues, presumably to tie them to adjacent natural teeth.

Journal: *Let's go back to the period before 1978, to the implant meetings some of us attended 25 years ago. We heard about all kinds of different implants – blades, ramus frame, subperiosteals. We also heard about failure rates of 75 to 80 per cent. Why were these early implants failing?*

Dr. Zarb: In those days, it appears that there was very little, if any, sound scientific biological basis that had been applied to routine clinical prescription. It was more a seat-of-the-pants approach, based on the premise that if metal placed endosseously in other parts of the body could survive for a number of orthopedic purposes, then, presumably, the same techniques could be transferred to the mouth and work equally well.

There were two very vital premises made in those pioneering days, and both were wrong. Premise number one: if you placed something in bone, which was stabilized in the bone by virtue of its three-dimensional design aspect – the object could be a blade, a screw, or a vent; you name it – it would remain stable in the bone in the same way an orthopedic metallic scaffolding would. But this analysis failed to take account of the fact that, in orthopedics, the scaffolding is only performing its job for the period of time that it takes mother nature and her osteoblasts to take over. Then the scaffolding becomes virtually irrelevant.

In the dental situation, however, the scaffolding was the actual source of both anchorage and stress-bearing. The way the stresses were transmitted to the interface, the way they manifested themselves in the interface, was not something that was taken seriously, because it was inadequately understood.



Dr. George Zarb

The second premise – that the epithelial seal was impervious – failed to correlate the actual nature of the interface, which manifests itself initially in the micro-movement of the implant relative to the surrounding host-bone sites, and eventually into macro-movements. These movements affected the integrity of the seal at the epithelial barrier through which the implant post made its entry and connection to the oral cavity.

Today, of course, we look back and understand why the early implants failed so often and that the cause was at the bony interface. But they failed at different periods of time, and if you applied the five-year survival rate rule – something we borrowed from oncologic therapeutic endeavors – and if the implant survived five years or more, it appeared you had something very worthwhile.

This is the most profound difference between the pre-osseointegration era and what has happened since. Today, we are talking about a controlled biological process with a remarkably successful outcome of service to the patient – analogues for tooth abutments with minimal morbidity.

Journal: *In the 1950s, Branemark wasn't looking for an oral implant at all. He was experimenting with bone healing and arterial circulation. Was his discovery serendipitous?*

Dr. Zarb: To some extent, yes. Branemark, let us remember, was a trained orthopedic surgeon with a traditional medical, biological, surgical orientation. Two of his major interests were blood circulation and the behavior of platelets. He was investigating the artificial replacement of blood vessels. He was also very active in the field of bone physiology

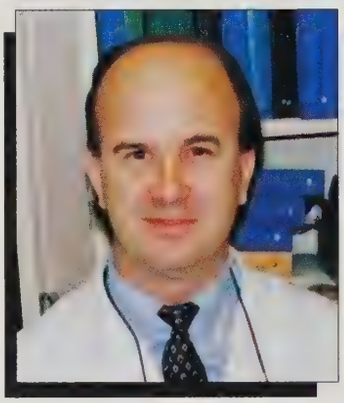
and was trying to better understand the predictability of the nature of bone healing, so that he could harness that knowledge into endosseously anchored alloplastic prostheses.

His classic series of experiments, undertaken in the 1960s with a beagle colony, led to the observation that if bone is handled in a certain manner in terms of preparation – how fast you cut it, how you prepare it – then the implant would seem to be so firmly anchored in the bone as to suggest some sort of biological stabilization. If you wanted to coin an expression, you could have called it "biological velcro." Branemark hit upon the buzz-word of osseointegration.

Journal: *So osseointegration was Branemark's word?*

Dr. Zarb: Yes it was. But other people had also observed osseointegration. One that comes to mind is the famous English orthopedic surgeon, Sir John Charnley. He introduced the idea of cementing implants into place with polymethyl methylmethacrylate, and observed "spontaneous tightening" in many of his uncemented stainless steel and vitallium screws. To me, spontaneous tightening is identical to osseointegration. But can you imagine an Academy of Spontaneous Tightening being popular today? Branemark was lucky. He hit on a buzz-word that caught on and persisted – osseointegration.

...you could have called it "biological velcro." Branemark hit upon the buzz-word of osseointegration.



Journal: *Did Branemark use titanium at the outset – had he already ascertained that titanium was more biologically acceptable?*

Dr. Zarb: No, he didn't do the latter. Actually, there is work dating back to the 1940s that showed that titanium, used in a commercially-pure form, demonstrated remarkable biocompatibility. It wasn't considered very seriously in orthopedics, however, because in the unalloyed form it is not very strong.

Branemark, on the advice of a colleague in the physical sciences, went with titanium essentially on serendipitous grounds – at least that is how I understand the evolution of the story. It was pure chance that the use of titanium led to the observation of an interfacial response that was so beneficial and so predictable.

Journal: *When did Dr. Branemark become involved with orally-placed implants?*

Dr. Zarb: I can't give you a specific year, but I believe it was in the early 1960s.

Journal: *What encouraged him to take that step?*

Dr. Zarb: In the late 1960s, Branemark and his colleagues published their early animal work, which had been performed over a three-year period with the colony of beagle dogs. On the basis of their observations, they realized that it was possible to adopt the two-stage surgical procedure we are familiar with today. The three-year study suggested very strongly and encouragingly that the next step was to move into human clinical trials.

By the late 1970s, the 10-year monograph, which was really the catalyst for the entire clinical endeavor around the world, was published. That is where Branemark and his colleagues shared, with the rest of us in the clinical and scientific fields, the results of their clinical trials in humans, which also included a report on the development and the changes in design of the particular system they were using.

Journal: *Dr. Zarb, you have spent some time in Sweden. When did you become involved with Dr. Branemark?*

Dr. Zarb: Our association with him is rather interesting. We had been involved with Swedish colleagues at the University of Göteborg in the area of TMJ disorders for a number of years. We had also been working with implants – our team in Toronto, which included Drs. Tony Melcher and Dennis Smith, were trying to copy the orthopedic experience of cementing hip prosthesis in place. We, too, in the early to mid 1970s, had a colony of beagle dogs, and were trying to cement artificial tooth root substitutes. In this case we used the blades, because they were the most popular thing going at the time. Our study didn't last a full three years, although we had obtained funding for that period from the Ontario Ministry of Health. Plainly and simply, each and every implant, over a variable period of time, was exteriorized and we lost them all. Localized osteomyelitis developed in each and every implant in our colony of 30 dogs.

It was a heartbreaker, but in the process of publishing our data we came to the attention of Branemark, who appreciated what was a very honest appraisal of a system and the methodology used. On one of my trips to Sweden in the early 1970s, I met Branemark and he showed me some of the patients he was working with, and indicated he was about to complete his 10-year study. I went away, returned to Toronto, and thought more about it. The more I thought about it, and went over the published animal work, the more I began to suspect that here was something that would catalyze the most dramatic therapeutic breakthrough in prosthodontics.

In 1975, Branemark and I began to talk about the possibility of replication studies. In 1977, when I was in Sweden on sabbatical, we came to the conclusion that it would be prudent and wise for a group from another part of the world to select the patients, to obtain independent funding from a government agency and to basically assess both the efficacy and veracity of what he was promoting. Luckily, Richard Ten Cate, my dean at the time, was equally enthraled about the idea, and the rest of it speaks for itself in what we have published.

Journal: *This, then, led up to the Toronto Conference in 1982? It seems that whenever we read about implants, the Toronto Conference is seen as a benchmark for implant work in North America.*

Dr. Zarb: We felt that if the research wasn't shared very soon with our colleagues in the teaching communities, who in return would use their wisdom and teaching opportunities to promulgate this information, we would run the risk of being copied. Then it would be commerce that would dictate the development of education.

We decided to launch the concept of osseointegration in May of 1982 at a conference to which we invited the academic leaders of universities from Canada and United States. There was a 100 per cent turnout from the Canadian universities,

and one of 95 per cent from the American schools.

Almost overnight, these key figures in prosthodontics – the movers and shakers, the leading educators at the time – were united by two driving forces. One, a conviction that the implants available on the market at the time were not very reliable, and two, that the preliminary data they had heard about osseointegration stimulated their appetite for application and development of the method. It was like a mass conversion.

Journal: *It is now 1992 – 10 years have gone by – would you have done anything differently?*

Dr. Zarb: No. From our point of view, I have no regrets about the prudence, the discretion, and the relative slow pace in which we have gone about everything. We went out on a limb, particularly in the prosthodontic community, and said, "Look, here is something which is going to revolutionize the way you look at patients, particularly the patients who are now maladaptive." And we were profoundly aware of our responsibility to these patients. Above all, we shouldn't destroy more bone nor put them in a more risky predicament then they were already in.

The fact that we conscientiously and diligently tried to monitor all these patients – our patient compliance has been extraordinary – reflects not only the dedication of our patient group but above all their happiness and satisfaction.

In my grimmer moments, I may regret the fact that, as a unit, we haven't acted faster to introduce this into our training programs so that more patients and more dentists can benefit from it.

Journal: *That leads us to another question, when do we get implantology into the undergraduate level – is it a topic for undergraduate teaching?*

We decided to launch the concept of osseointegration in May of 1982 at a conference to which we invited the academic leaders of universities from Canada and United States.

Dr. Zarb: I happen to think that it is. But one of the problems is curriculum time. Educators are constantly faced with the challenge of reviewing programs and, if necessary, of dumping excess baggage and replacing it with more relevant material.

In this case, it is very important to inform our students that their patients have options. I think it is unconscionable for today's dentist not to alert patients that there is an option to the traditional prostheses.

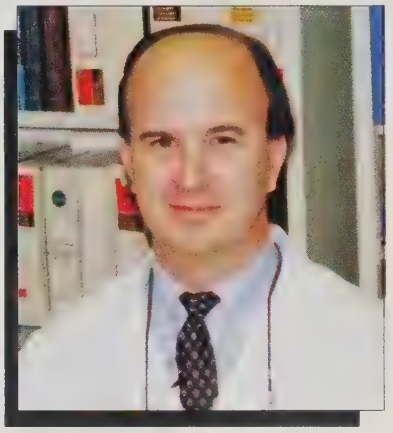
So, yes, it should be taught, but because I think that this should be a collective responsibility, I'm not sure to what level.

In Toronto, for the past few years, we have made our students aware of what osseointegration means, what it offers, and we also encourage them to take courses in it when they leave here.

The same two- or three-day implant course that we give to general practitioners is also given to our undergraduate students, spread out over their fourth year. Let me hasten to point out, however, that one has to question how efficacious we are in terms of teaching this subject when the student has had so little experience with our traditional methods of fixed and removable prostheses.

The face of dentistry has been changed prosthetically because of osseointegration, but we are certainly not prepared to throw out the baby with the bath water and say that removable partial or complete dentures are passé. That is absurd. These traditional technologies have been wonderful for many years, for many people, at a very fair fee, and above all they can be modified, renewed and maintained relatively inexpensively.

I think it is unconscionable for today's dentist not to alert patients that there is an option to the traditional prostheses.



Journal: *But wasn't the Branemark system, when it was first introduced to us in North America, directed toward specialists only – to the oral surgeons, the prosthodontists, and the periodontists?*

Dr. Zarb: That is partially correct. In Toronto, initially, we only gave courses to educators because we wanted to develop a cadre of experienced teachers across the country. At the outset, we directed the courses toward the surgical specialist and then to the periodontist community. In 1982 and 1983, we introduced the course to the prosthodontists. We have been teaching the prosthetic application to general practitioners since 1984.

Journal: *Does a three-day course give a general practitioner enough skills and knowledge to capably handle an osseointegrated case?*

Dr. Zarb: You are posing, here, the most difficult question to answer – how much is enough. I would like to think, as an educator who has been at it for a quarter of a century, that you can take a group of highly motivated professionals and synthesize for them a body of information that can be co-opted along with their routine knowledge and experiences. I think, by and large, that the vast majority of the individuals who take these courses will learn enough so that they can build on this knowledge with prudence and discretion.

Journal: *How does the dentist who is interested in osseointegration select a course. Dentists' desks are literally deluged with mailings touting this company or that method. How does a dentist decide between them?*

Dr. Zarb: Another tough one, for a number of reasons. Traditionally, in dentistry, the marketplace has been quite dominant in the activities of the general practitioner. Today's favorite composite is not necessarily the one you used two years ago. In fact, attempts at long-term research in a lot of the restorative materials are doomed by the fact that within a few months, perhaps in a few years, those materials are pulled off the shelf and replaced by newer, reinforced, better materials. Implants are no different. One almost gets the impression that it is the marketplace that determines what kind of im-

plants are sold.

Our view has been rather firm on this one. Some people may consider it rigid, but I consider it to be most realistic. We started off with an implant system which, in its day, in the late 1970s, had the most compelling long-term research going for it. This justified using that system with a sense of safety and a sense of reassurance. We have found no reason why we should drop it and switch to another system.

Having said this, I must make the point that this attitude does not preclude the fact that there are a number of other systems out there that may turn out to be as good as the one we use – I believe there are over four dozen of them registered in the United States patent office in Washington D.C. And I am also sure that there are a number of implants among these four dozen systems that, indeed, can bring about osseointegration in patients, and are likely to achieve long-term results similar to those we have already achieved.

What dismays me is that very few of the implant systems available out there have had the same track record of university-sponsored research, or of controlled clinical research in hospitals or standard-oriented private offices, that would convince me that these products are perfectly safe.

For all we know, a number of these implants will indeed bring about short-term osseointegration, but then self-destruct in terms of an interfacial response a few years down the road.

The implant field has suddenly become a magnet for the entrepreneur, but on the heels of the entrepreneur are also some very fine scientists who are developing implants. If a yardstick were applied nationally by an organization such as the Food and Drug Administration, or any other government body, or even a dental association for that matter, I am sure we would end up with five or six implant systems on the market, all of which would be regarded with reassurance and a sense of safety vis-a-vis professional activity.

I think, by and large, that the vast majority of the individuals who take these courses will learn enough so that they can build on this knowledge with prudence and discretion.

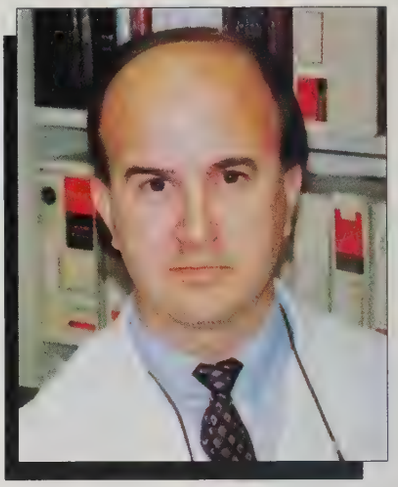
Journal: *Do you think our licensing bodies should be taking some sort of stand. I know several licensing authorities in Canada have issued implant guidelines. Can these guidelines be enforced?*

Dr. Zarb: I would be inclined to say no. A precedent would be set where a licensing body has an enormous responsibility to embark on a policing action for every material that comes along. There are government agencies that take care of drugs, and other components such as implants.

Journal: *Health and Welfare Canada, Health Protection Branch, has some regulatory systems on implants – those that are acceptable or not acceptable, clinical compliance and non-compliance. We have published these regulations in our Journal. Yet we see, and we pointed it out to the federal government, that there are obvious infractions of the regulations, and that they don't seem to have any real purpose. People are trying to regulate the area and it doesn't seem to be working.*

Dr. Zarb: I can't speak for the federal government. The universities have control and influence only up to the day when their students graduate. And universities have only a non-obligatory continuing education format.

One almost gets the impression that it is the marketplace that determines what kind of implants are sold.



However, we are a self-regulating body – with regulations built on principles and ethics, science and all the other factors.

These are the ingredients of our formula for success – self-policing regulation. Despite what I said about hoping that the government would control the quality of things manufactured, ultimately it is our group that is responsible for implants.

Journal: *What about the aspect of big business controlling the distribution of implants. Nobelpharma controls the Branemark system and Dentsply controls Core-vent, for example. What are your thoughts on the commercial aspects?*

Dr. Zarb: You have identified two major competitors, and both companies have had a good track record of promoting good products. Nobelpharma appears to have bought into a scientifically-documented track record, however, and I don't think Dentsply can claim comparable documentation.

I am not aware of other systems that have the same elegance, vigilance, and conscientiousness of documentation as the Branemark system, with comparable long-term data. However, the gap is bound to close, and as I mentioned earlier, I think it is just a matter of time before other systems will be able to claim similar results.

Journal: *Does Branemark have a hydroxyapatite system?*

Dr. Zarb: No, and I don't think he is ever likely to. He has been remarkably consistent in terms of sticking to his formula of bone preparation, which of course you can't patent, and a commercially-pure titanium. He has shown that if you handle bone nicely it is likely to do nice things for you in return.

Branemark came up with a screw design, because he is a trained orthopedic surgeon and that's how they immobilize their plates. The screw gives immediate stabilization, plus a larger surface area. And he has stuck to pure titanium which, as I mentioned earlier, has shown itself to be a very fine biocompatible material.

On the other hand, the hydroxyapatite idea is exciting because it appears that hydroxyapatite induces a more rapid and equally favorable interfacial response to the one produced by commercially pure titanium. But at the end of a year's observation period, as current research shows, you have the same results with hydroxyapatite as you do with pure titanium. The argument could be advanced that in those situ-

ations where poor-quality bone is a factor, you might be better off getting earlier bonding or bonding-like behavior with hydroxyapatite than with titanium. Of course, that still has to be shown. However, there appears to be uncertainties about the stability of the HA surface and the long-term significance of this.

Journal: *One of the areas we haven't touched on is the mucosal seal. It seems like a puzzling situation, where we don't have periodontal membrane, but there is some type of a seal that stands up over a long period of time. Does the seal actually have integrity and does it last with care?*

Dr. Zarb: One of my colleagues, Robert Carmichael, did his masters research in this area a few years ago. He ends up his talk on the subject by saying, "I am a god-fearing man, and I never thought that I would say this, but it seems that man has produced a seal that is better than the one that the good lord gave us."

Now, this is a tongue-in-cheek statement, but here we are, inducing an attachment mechanism for tooth root substitutes that can seemingly function as well as the periodontal ligament but is not as vulnerable.

Over and over again, we have seen people who have lost their teeth because of habits or behavior. We then offer them osseointegrated prostheses, and maybe for six months or a year they clean a little bit, but as the years go by they come back for the annual check-up and we see mouths that are filthy in terms of accumulated debris on the hardware, mainly on the superstructure. We see a range of gingivitis-type events, but we rarely see a loss of osseointegration.

I obviously don't have an answer for this other than the preliminary conclusion that if an implant is firm in bone and the osseointegration is of such a nature that it precludes any micro-movement, then the seal that develops from the periosteal cuff around the titanium, and whatever connective tissue is above it, is so reliable that it no longer is an Achilles heel. I think it is incorrect to presume that the pathogenesis of periodontal disease and the mechanism of loss of integration are similar.

The universities have control and influence only up to the day when their students graduate.

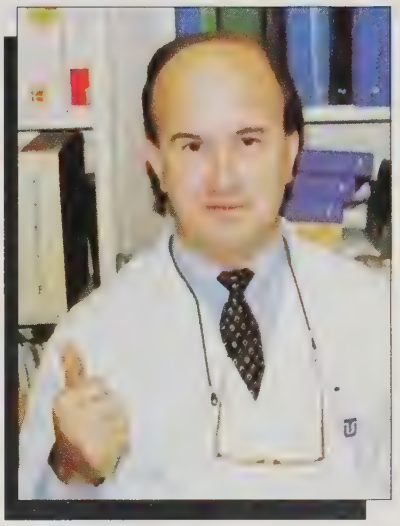
Journal: *Let's end off with a bit blue sky. What do you see in the 21st century? Do you see the end of complete dentures?*

Dr. Zarb: I hope not. And not just for sentimental reasons. The track record of treating edentulous patients with complete dentures is remarkably good in terms of an approach which is inexpensive, which is predictable, which is maintainable and which can be serviced.

On the other hand, we have a group of individuals at the other end of the spectrum, who for psychological or morphological reasons cannot tolerate removable prostheses. For these people, the problem has by and large been solved. The spill-over is going to be in the direction of those patients who have done well with removable prostheses but suddenly become aware of the fact that they have an option for something that is going to relieve them of that foreign object, which they have to remove and clean. Let's face it, there is a lot of appeal in that. Besides, it is pretty clear from diverse studies that residual ridge resorption is much less when implant-supported prostheses are used.

Then there is the population group that is being heroically maintained by the periodontist, and by the dentist or the prosthodontist, with expertise in extensive fixed bridgework.

The seal that develops from the periosteal cuff around the titanium, and whatever connective tissue is above it, is so reliable that it no longer is an Achilles heel.



I think this is the group of patients that is going to pose the biggest challenge in the future. Is it going to be better, where these people are concerned, to take the bull by the horns and remove their periodontally-compromised teeth, which may have a dubious prognosis anyway, and replace them with implants, which in certain jaw locations have a very good prognosis?

Journal: *What about the single tooth implant?*

Dr. Zarb: The whole business of single teeth generates a lot of excitement. We think about the young individuals with a tremendously low incidence of decay, who have congenitally missing teeth or traumatically avulsed teeth. In the past, they were classical candidates for three-unit bridges. But we know that the younger you intervene with fixed bridgework, the greater the risk of adverse changes over the course of a lifetime.

For these people today, a very viable option is the placement of an implant and an implant-supported single tooth, which will minimally upset the ecology of the mouth. This is a very realistic alternative, and the preliminary data from our study suggests much hope for such an approach.

Journal: *Are you looking for something new in implants? Is there an area that you can see where they can or should be improved to make our prosthodontic world better.*

Dr. Zarb: I think the biggest breakthrough has already taken place because of our ability to predictably and safely prescribe the placement of tooth root substitutes. One direction in research is in the improvement of the host bone site. In other words, we have the bio-technology for anchorage, but what we don't have yet is a fully developed, fully proven bio-technology for improving the site in which we are going to place the anchor. The breakthrough here appears to have occurred with osteo-promotive activities and tissue-guided regeneration techniques. This can only lead to an explosion of skills and methodologies, which should be able to give us the most improved regenerated sites of bone possible. When combined with a technique that is time proven and a quarter of a century old, namely the osseointegrated technique, the scope becomes enormous. I think that is where the revolution in prosthodontic dentistry will be. ■

Selling a practice? Leasing an office?
Buying equipment? Renting your vacation property?

CDA ACCESS ADS offer faster results at a better price. Guaranteed.

DENTAL PROFESSIONALS' ACCESS ADS

Available only to dentists. Text only; 50 words or less: **$49.95** per insertion.
Additional words: 50 cents per. Prepayment by cheque, VISA or MasterCard only. No charge for box numbers.
GST applicable. **Available attention-grabbers:** borders, $20 extra per insertion; boldface heading, $10 extra per insertion

ACCESS DISPLAY AD RATES & SIZES width x depth	*1 insertion*	*2 insertions*	*3 insertions*	*6 insertions*	*12 insertions*
cost per column inch unit 2-1/8" x 1"	$ 67.50	65.50	63.50	61.50	59.50
professional cards 3-3/8 x 2-3/8" (minimum 6 insertions)	—	—	—	175	165
directory ads 2-1/8 x 2-3/8" (minimum 2 insertions)	—	150	140	130	120

Other sizes available. Please write or call for our rate card.

Closing dates: 16th of month prior to publication (example: material for the October issue must be received by September 16.)

Mail material to:
CDAccess Ads, 1382 Hurontario St., Mississauga, Ont. L5G 3H4.
Fax material to: (416) 278-4850
Or place your order by telephoning OLA MURPHY at (416) 278-6700, Toronto calling area;
(800) 661-5004, toll-free throughout Canada

CDAccess Ads

Faster results at a better price. We guarantee it.

Surgical Correction for Esthetic Problems Associated with Dental Implants

C.G. Ibbott, DMD, FRCD(C)
R.J. Kovach, DMD
L.D. Carlson-Mann, SDT, RDH

Introduction

Twenty-seven years of scientific research with the Branemark implant system has highlighted the application and predictability of dental implants in a variety of reconstructions.

In partially edentulous cases, implant therapy is now generally more predictable and less destructive to the natural dentition than more traditional prosthodontic procedures. Until recently, it has been difficult to obtain esthetic excellence in the final restoration using the conventional abutments available for crown and bridge restorations. However, ideal tissue contours, including soft tissue emergence, will be enhanced through the use of new clinical techniques.

Lazzara[5] has spearheaded the development of dimensionally-correct anatomically-shaped abutments that can produce better esthetics. Branemark has also developed a new component system to address esthetic concerns, and other implant systems are following suit.

Unless the lip line fails to display the cervical margins, our experience indicates that the best possible esthetic results are obtained if the following guidelines are respected:

1. In the anterior maxilla, immediate implants should be placed, when possible, to avoid the inevitable facial plate collapse.

2. If ideal labial-incisal implant placement is not possible, then consideration should be given to a bone graft or guided tissue regeneration procedure prior to implant placement.

3. The implant shoulder should be placed two to four millimetres apical to the adjacent CEJ to allow subgingival porcelain placement. With the crown to abutment junction ending subgingivally, there is room to develop a proper emergence profile. Ideally, a cross-sectional dimension of soft tissue to bone similar to the one found in a natural tooth will be seen.

As well as facial plate collapse after tooth loss, the authors have observed ridge defects that were related to traumatic tooth loss, surgical extraction, apical surgery and scarring from various surgical procedures.

Case Illustrations

Case 1

Fig. 1 illustrates the excellent esthetics associated with the replacement of congenitally-missing lateral incisors using the principles outlined in this paper.

Case 2

Fig. 2 illustrates the use of a subepithelial connective tissue graft,[1] with rotated flap,[3] to restore the facial and papillary tissue lost due to an acute infection. The tissue is taken from the palate, but leaves an epithelial covering for the donor site.

Case 3

Fig. 3 illustrates the use of a free gingival onlay graft[2] to correct a tissue depression. Color matching is important, and it is sometimes necessary to take tissue that is closer to the palatal mid-line to accomplish this end.

Case 4

In this case, a subepithelial connective tissue graft[1] was used at stage-two surgery. The excellent esthetics are obvious. Gantes suggests performing this technique one month before stage-two

Fig. 1: Top: Missing laterals. Bottom: Completed restorations.

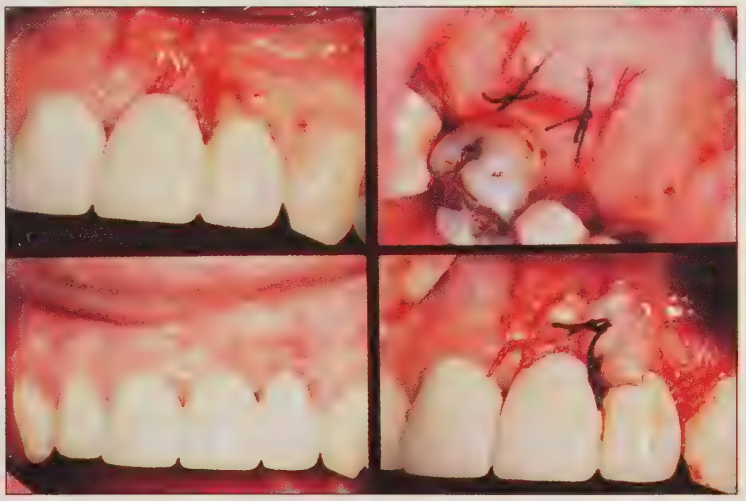


Fig. 2: Top left: Tissue deformity. Top right: Palatal donor area. Bottom right: Graft in position. Bottom left: Four-week healing.

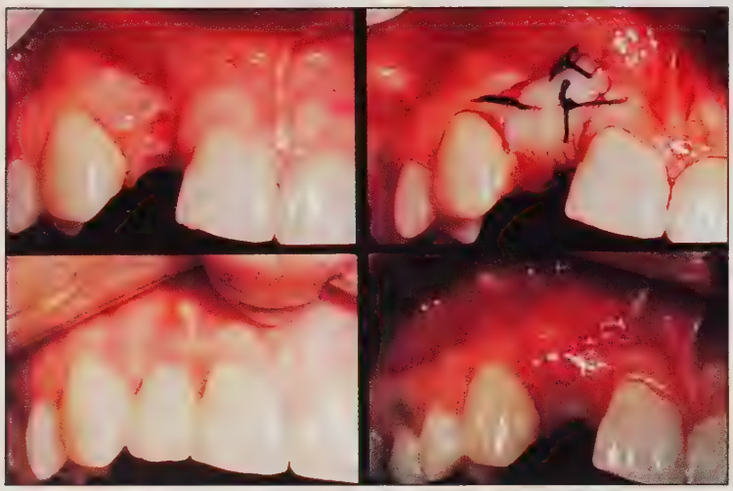


Fig. 3: Top left: Tissue depression. Top right: Graft in position. Bottom right: Healed graft. Bottom left: Final restoration.

Fig. 5: Top left: One month post trauma. Top right: Seven months post trauma. Bottom left: Abutment placement. Bottom right: Plastic guide stent.

Fig. 4: Top: Uncovered implant. Bottom: Final restoration.

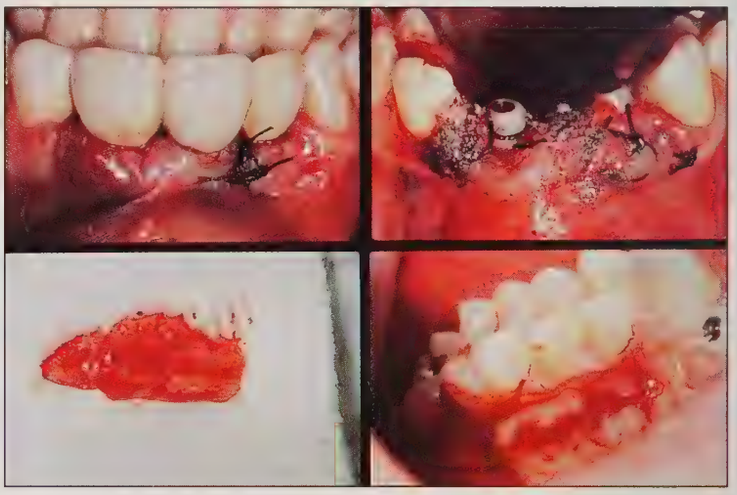


Fig. 6: Top left: Palatal donor site. Bottom left: Graft. Top right: Grafting to recipient site. Bottom right: Two week healing.

surgery. He "overbulks" the tissue, then recontours it at the time of the surgery. This entails an extra surgical procedure, but eliminates the possibility of inadequate bulking at stage-two surgery (**Fig. 4**).

Case 5

Figs. 5 and 6 show the patient's tissue contours one month after traumatic tooth loss (baseball bat). Implant placement was done at one month. There had been considerable alveolar bone loss and guided tissue regeneration was necessary. At six months, the extent of bone and soft tissue remodelling can be seen. To avoid the need for a plastic flange, a stent was fabricated to indicate the bulking that would be required at stage-two surgery to provide an esthetic result. A subepithelial connective tissue graft was used[1] to overbulk the tissue, which was then cut back to create papillary form and decent labial contours.

Although it is not within the scope of this article, it should be mentioned that the authors use traditional periodontal mucogingival surgery around implants. Free gingival autografts may be used to correct gingival discolorations (i.e. amalgam tattoo).[3] A rotated[3] or advanced[3] flap may be necessary to correct isolated areas of recession, which may occur on implants that have already been restored. In most cases, it is necessary to do the repair with the retrievable crown and abutment removed.

Conclusion

Implants can be a completely functional and viable alternative in dentistry, as well as being esthetically pleasing.

The use of a team approach during treatment planning for patients receiving dental implants is an absolute must. With this in mind, it is possible for dental practitioners to achieve extremely pleasing results. Today's implant restorations look so natural that even a trained eye will have trouble detecting them. ▪

Drs. Ibbott *and* **Kovach** *and* **Ms. Carlson-Mann** *are part of an implant team providing 12-month study club training in the utilization of the Branemark system in Regina, Saskatchewan.*

Reprint requests to **Dr. Ibbott**, *250 - 2550 15th Ave., Regina, Saskatchewan S4P 1A5.*

References

1. Langer, B. and Langer, L. Subepithelial connective tissue graft technique for root coverage. *J Periodontol* 56:715, 1985.
2. Siebert, J.S. Reconstruction of deformed, partially edentulous full thickness onlay grafts. *Compend Contin Educ Dent* 1(3):205-214, 1980.
3. Agudio, G. et al. Esthetic modifications in periodontal therapy. *Int J Periodont Res Dent* 4:289, 1989.
4. Gantes, B.G. Presentation: Academy of Osseointegration, Feb. 27-29, 1992.
5. Lazzara, R.J. Presentation: Academy of Osseointegration, Feb. 27-29, 1992.

Osseointegrated Implants for Stabilization of the Partially Edentulous Patient

Keith H. Compton, B.Sc., DDS, MS

Introduction

Correcting the partially edentulous patient has been a challenge for dentists since the evolution of the profession, particularly when load distribution using Kennedy Class I and Class II partial dentures is involved. Even today, clasp designs, location of occlusal rests, and load distribution on terminal teeth regularly test both scholars and "wet gloved" practitioners.

Questions that typically arise in regards to treating partially edentulous patients are: How are the supportive teeth affected by the load distribution? Is bone loss in the edentulous ride accelerated when a partial denture is placed? Is the prosthesis acceptable esthetically and functionally?

The correction of these problems through framework and casting designs has been outlined and researched by many practitioners in the field.[1,2,3] In recent years, patients have demanded increased esthetics and stability, which has led to the use of semi-precision and precision attachments. The effective stabilization of removable partial dentures is still a controversial issue, however, and the resulting inconsistency in overall patient satisfaction has led professionals to consider other alternatives.

It is this author's belief that dental implants will be the major component in restorative dentistry in the 1990s. In fact, the use of dental implants for the correction of the partially edentulous patient has already risen to the forefront of dental implantology. This article will focus on the use of interosseous implants for the strategic correction of partially edentulous spaces.

Osseointegration Concept

Professor Per-Ingvar Branemark of Sweden coined the term "osseointegration" and defined it as "a direct structural and functional connection between ordered, living bone and the surface of a load-carrying implant."[4] It was Branemark who pioneered the use of dental implants fabricated from medical-grade titanium, a relatively strong, ductile biomaterial that develops an oxide surface in air. Some researchers believe that this passive oxide layer enhances the biocompatibility of titanium, particularly when it is used in dental implants, and the concept of healthy bone adapting extremely well to titanium has opened new avenues for traditional implantology.[4]

Dr. Keith H. Compton

The placement of successfully-integrated dental implants depends on a variety of other variables, however, such as implant design, status of the implant bed, surgical technique, and load conditions. These topics will not be discussed in this article, but should always be considered in treatment planning.[4,11]

Selecting Implant Locations

Diagnostic imaging of the alveolar support can be critical to the long-term success of interosseous dental implants. A careful evaluation of the patient's bone quality and quantity is required to achieve optimal placement of the implant fixtures. The implant site must be free of active disease. In addition, it must allow for the appropriate angulation of the implants, facilitating the placement of an accurate and "useable" implant. The surgical insertion of the implant must not compromise the status of other anatomical components, such as the mandibular canal and maxillary sinuses.

A variety of images are used to establish appropriate surgical sites. These include periapical radiographs, lateral cephalometric cuts, panoramic radiographs, tomography and, occasionally, CT scanning.[5-8] Film selection should be decided by the surgeon placing the fixtures.

Prerequisites regarding suitable site selection should be assessed with the restorative dentist prior to surgical intervention. Success is two-fold, and occurs when the restorative dentist can use the fixture and it is fully integrated. The design and location of the implant fixture is best orchestrated through a multi-disciplinary approach, which should involve the use of a template. The template replicates the position of the final prosthesis, providing the surgeon with a guide for placing the implant fixtures.[9]

Treatment Planning for Posterior Edentulous Patients

A number of considerations are involved in the treatment planning of patients with posterior edentulous spaces, notably:

1. The status of the remaining dentition must be considered. The alveolar support and periodontal status of each remaining tooth must be carefully assessed. Considerations such as interarch distance must be made, due to the frequent occurrence of super-erupting teeth into the edentulous spaces. A minimum of seven millimetres is required between the implant fixture and the articulating surface of the opposing arch to properly use implants.[10]

2. Anatomical landmarks must be

Fig. 1: The edentulous ridge distal to tooth 12.

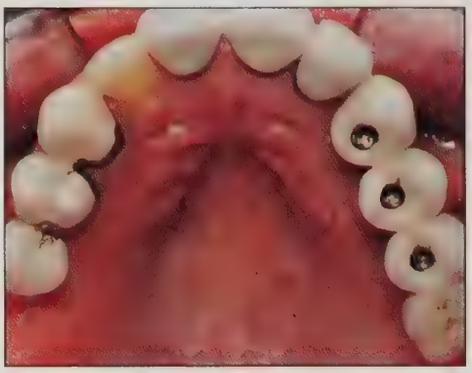


Fig. 3: An occlusal view showing a four-unit fixed prosthesis prior to composite resin coverage.

Fig 4: An occlusal view showing a four-unit fixed prosthesis after composite resin coverage.

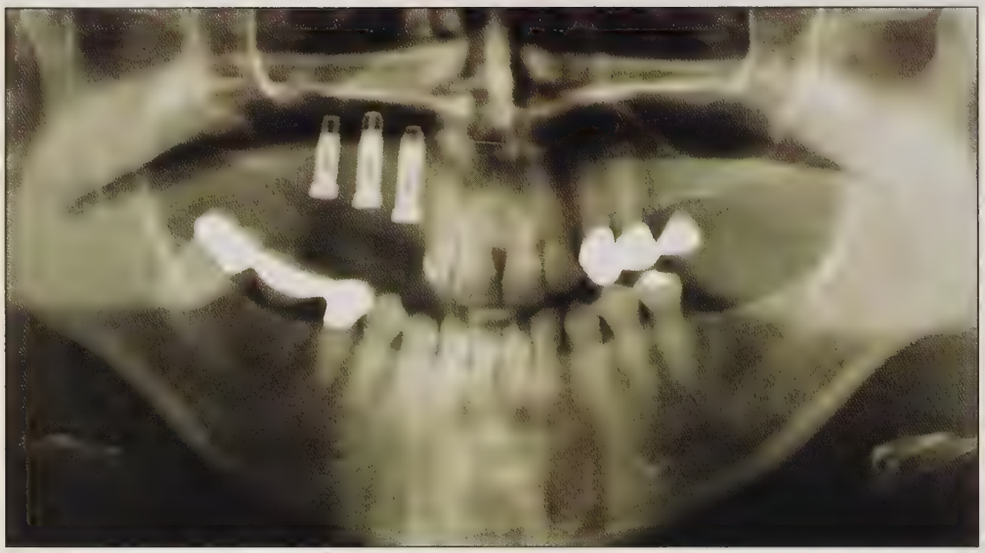


Fig. 2: Three parallel implant fixtures distal to the lateral incisor 12.

Fig. 5: The lateral view shows an appropriate emergence profile and a maximization of esthetics.

Fig. 6: A stable porcelain-bonded-to-metal restoration has resulted in a pleasant smile.

located, and the quality and quantity of the bone available for the placement of implants must be predicted. Often, it is necessary to utilize CT scans or linear tomography to locate the inferior alveolar nerve and the maxillary sinuses.

3. Both load distribution and the number of dental implant fixtures to be inserted must be decided. More specifically, a careful evaluation of the load that will eventually be placed on the implant-born prosthesis should be considered. Is the opposing arch natural dentition or a removable prosthesis? Has there been a history of dysfunctional habits, such as nocturnal grinding and daytime clenching?

4. The quality and quantity of the bone to be used for the integration of the dental implants must be examined. Will there be adequate space for the number of fixtures necessary?

5. The status of the temporomandibular joints and the extent of the patient's ability to open must be considered. Often, the surgical sequences are done with sedation, which allows an increased oral opening for manipulation and placement of implants. The prosthetic components, however, are generally placed without sedation, and a limited oral opening can be a challenge for the most skilled restorative dentist.

6. Patients must participate in the long-term maintenance of both their remaining dentition and their implants. Appropriate recall and oral hygiene maintenance is critical to long-term success.

7. Another specific consideration in the location of implant fixtures has evolved with the development of angled and, most recently, conical second-stage abutment connections. Emergence profile and soft-tissue adaptation is now possible, making implant location critical to maximizing the esthetic result.[11]

Utilization of Various Implant Modalities: Case Presentations

Over the past eight years, the author has loaded over 800 implant fixtures with a variety of superstructures. One of the most rewarding situations is the successful restoration of the partially edentulous patient. The Branemark Implant System* is the author's preferred implant system. Calcitite implants** and IMZs*** are used as alternate systems in specific situations.

Case 1 – Maxillary Posterior Implant

The patient, a 35-year-old female, had a long history of complications with

Fig. 7: The mouth of a 65-year-old patient frustrated by the lack of support provided by a unilateral mandibular partial denture.

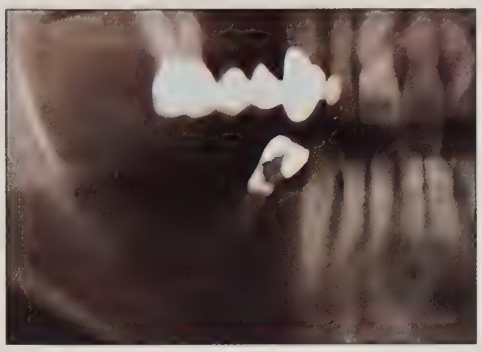


Fig. 9: A radiograph of the patient's mouth prior to implant placement (note that tooth 44 has been sacrificed).

Fig. 10: A radiograph of the patient's mouth following implant placement.

Fig. 8: A pre-treatment panoramic radiograph showed that support could be gained through the use of parallel osseointegrated implants.

Fig. 11: A pontic was cantilevered into the location of tooth 44, which maximized the esthetics in this region.

*Fig. 12: Esthetics were not compromised by leaving the terminal abutments away from the tissue (see **Fig. 11**).*

cantilever maxillary bridges. She was obliged to wear a unilateral maxillary partial denture to replace teeth 13, 14, 15, and 16. **Fig. 1** reveals the edentulous ridge distal to tooth 12. Several traditional removable partial dentures were designed and placed with little success. Most traditional partial dentures or precision partial dentures would have placed excessive load on tooth 12. Following a lengthy discussion of the various treatment options, it was decided to place three Branemark implants in the maxillary edentulous space to stabilize a unilateral fixed prosthesis.

The panoramic radiograph (**Fig. 2**) reveals three parallel implant fixtures distal to the lateral incisor 12. Note the level of the implants as they pass through the mucoperiosteum. These implants were strategically placed to allow an appropriate emergence profile of the final restorations. Note the length of the fixtures (15 mm fixtures) and the amount of alveolar housing around each of these dental implants. The implants were left for a period of six months before second stage loading was considered. An interim prosthesis was constructed, which was worn by the patient for several months. This reduced the load on the implants, allowing for further consolidation of the medullary bone and the integration of the implant fixtures. The distal extension was then placed on the final prosthesis.

The occlusal views (**Figs. 3 and 4**) reveal the four-unit fixed prosthesis with and without composite resin coverage. Note that the implant screws are protected from the composite resin with gutta percha, and then sealed. This allows easy retrievability of the superstructure at 12 to 18 months recall. A lateral view (**Fig. 5**) reveals an appropriate emergence profile and a maximization of esthetics, which were accomplished by using an implant placement that mimicked the root position of the lost teeth in this edentulous space.

It is extremely important to emphasize excellence in oral hygiene maintenance to the patient. A six-month recall or three successional sessions are recommended to guarantee that patients will maintain a healthy, plaque-free environment for dental implants.

Fig. 6 reveals a pleasant smile and a stable porcelain-bonded-to-metal restoration. Esthetics, speech, and function have been guaranteed in the maxillary first quadrant. The author anticipates the eventual loss of the cantilever bridge on the contra-lateral side, at which time additional implants could be used to stabilize the entire maxillary arch.

Fig. 13: The mouth of a 33-year-old patient suffering from acute periodontitis with several apical lesions.

Fig. 16: Healthy tissue has developed around both the implants and the remaining teeth.

Fig. 17: An occlusal view of the completed restorations.

Fig. 14: A pre-treatment radiograph showing the removal of periodontally-involved teeth.

Fig. 15: A radiograph of the patient's mouth following implant placement.

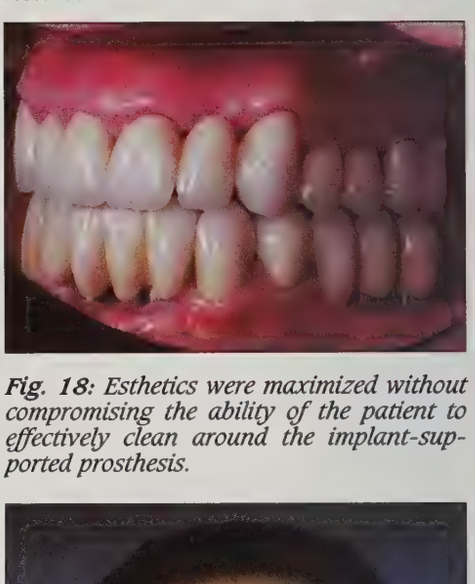


Fig. 18: Esthetics were maximized without compromising the ability of the patient to effectively clean around the implant-supported prosthesis.

Fig. 19: The final result — a stable, enthusiastic smile.

Case 2 – Unilateral Distal Extension Mandibular Prosthesis

Fig. 7 shows a 65-year-old female who was frustrated by the lack of support that she had gained from her unilateral mandibular partial denture. Several cast partial dentures had been made to replace teeth 45 and 46. A pre-treatment panoramic radiograph (**Fig. 8**) revealed that support could be gained through the use of parallel osseointegrated implants. Tooth 44 was sacrificed due to its angulation, coronal breakdown, and overall questionable prognosis. It was felt that three implants would support this region more effectively, and improve the longevity, if the questionable first bicuspid was removed. **Figs. 9 and 10** reveal the pre- and post-implant placement. A pontic was cantilevered into the location of tooth 44. This maximized the esthetics in this region (**Fig. 11**).

In the region of teeth 47 and 46, a superstructure that would enhance the ability for oral hygiene maintenance

was used. The author believed that this type of superstructure was healthier for the soft tissue interface. In this case, it was not critical to have the emergence profile of the final prosthesis appear below the soft tissue, which would have made long-term oral hygiene maintenance extremely difficult for the patient. The next photograph (**Fig. 12**) reveals that esthetics did not play an important role in leaving these terminal abutments away from the tissue. Improved function, occlusal harmony, and the ability to clean the superstructure were the major considerations in the design of this unilateral prosthesis.

Case 3 – Comprehensive Prosthodontics Using Implants and Fixed Prosthodontics

Fig. 13 reveals a 33-year-old male suffering from acute periodontitis. Numerous teeth had apical lesions and comprehensive treatment was required to stabilize this situation. Pre- and post-treatment radiographs (**Figs 14 and 15**) reveal the removal of periodontally-involved teeth and the placement of implant fixtures. A fixed implant/tooth-borne prosthesis was considered a viable treatment option.

The Maxillary Arch – Appropriate periodontal maintenance and endodontic therapy was needed. Supportive build-ups were completed and the remaining teeth were saved with the exception of tooth 26. An IMZ implant was placed in this region. Tooth 26 was supported with tooth 25 by a tube lock attachment.****

The Mandibular Arch – All of the posterior teeth were sacrificed with the exception of teeth 33, 34, 43, and 44. Dental implants were placed in the mid-line and in the posterior regions bilaterally.

Calcitite implants were used in both distal extensions. Three Branemark implants were placed in the mid-line. Following an appropriate healing period of four months, the decision was made to keep one Branemark implant as a "sleeper." It was found that there was not adequate room for the optimal use of three implants in the anterior region, and esthetics were in fact enhanced through maintaining only two implants.

"Tube-lock attachments"**** were placed on the distal aspect of teeth 34 and 44. This allowed for semi-rigid support of the implant prosthesis bilaterally. The male component of the attachments was housed in the implant prosthesis, which allowed retrievability. Single porcelain-bonded-to-metal restorations were placed on the four remaining teeth. Occlusal rests were placed on the mesial aspects of the mandibular cuspids to allow a positive seat for the anterior implant-borne prosthesis. **Figs. 16 and 17** are occlusal photographs that reveal healthy tissues around all remaining teeth and around all dental implants. Esthetics were maximized without compromising the ability of the patient to effectively clean around the implant-supported prosthesis. The final photographs (**Figs. 18 and 19**) reveal a stable, enthusiastic smile.

Introducing Implants Into Your Dental Practice

Implants can become an important part of a restorative dental practice, but there are several considerations that must be made before their introduction. Specifically, practitioners should:

1. Carefully review and critique the literature on dental implantology, tentatively select an implant system, and familiarize themselves with all aspects of that system.

2. Make certain that there is a support network available in their community or city before taking a final decision on an implant system. There are a variety of implant systems available that have little or no company support in Canada.

3. Investigate taking an introductory course in dental implantology. These courses have been available for several years. It is also very advantageous to join an active "hands-on" study club that will double as a support/consultation group. Effective treatment-planning skills for dental implantology can be further developed when colleagues are involved in an ongoing discussion.

4. Recognize that treatment options are constantly improving, and organize a library of information, updating it as new articles are published.

5. View a surgical implant procedure or assist in the operation, especially if the involvement with dental implantology will be specific to the restorative phase. This will lead to an enhanced appreciation of the total concept of dental implantology.

Conclusion

Edentulous patients have been treated for approximately 25 years using the Branemark system and other interosseous implant systems. The predictability of dental implants in restoring partially-edentulous patients provides these individuals with an increased ability to function. As a result, the use of interosseous implants in modern restorative dental practices will revolutionize patient care. Careful documentation and appropriate treatment planning is critical to the long-term success of dental implants in a modern dental practice. ■

Dr. Compton *maintains a private practice in Edmonton, Alberta, and is a part-time clinical professor in the faculty of dentistry at the University of Alberta. He is also presently involved in organizing the undergraduate curriculum for dental implantology at the University of Alberta. Dr. Compton lectures nationally and internationally on all aspects of restorative dentistry.*

* *Branemark System, Nobelpharma, Nobel Industries, Sweden.*
** *Calcitek, a company of Sulzer Medical, California, U.S.A.*
*** *Interpore IMZ Implant System, Canadian Microsurgical Ltd.*
**** *Tube-lock semi-precision attachment, Stern-Gold Attachments International.*

References

1. Henderson, D., Castleberry, D. and McGivney, G., editors. *McCracken's Removable Partial Prosthodontics*. Seventh Edition, Mosby Co., 1985.
2. Krol, A.J. *Syllabus: Removable Partial Denture Design*. University of Pacific School of Dentistry, 1981.
3. Renner, R. and Boucher, L. *Removable Partial Dentures*. Quintessence, 1987.
4. Albrektsson, T. and Albrektsson, B. Osseointegration of bone implants. A review of an alternative mode of fixation. *Acta Orthop Scand* 58:567-577, 1987.
5. Hobo, S., Ichida, E. and Garcial, L.T. *Textbook: Osseointegrated Implants*, Quintessence, pp. 209-238, 1990.
6. Albrektsson, T. and Zarb, G.A., editors. *The Branemark Osseointegrated Implant*. Quintessence, 1989.
7. Jent, T., Lekholm, U. and Agell, R. Osseointegrated Implants and the Treatment of Partially Edentulous Patients: Preliminary Study of 876 Conservatively Placed Fixtures. *Int J Oral and Maxillofac Surg* 4(3):211-217, 1989.
8. Hatcher, D. Imaging for Endosseous Implants. Folsom Boulevard Radiology, Sacramento, California. Unpublished article, 1991.
9. Cordioli, G. et al. *Esthetic Considerations with Implant Supported Prostheses. The Branemark Osseointegrated Implant*. Albrektsson, T. and Zarb, G.A., editors. Quintessence, 1989.
10. Cera One Abutment – Esthetical Single Tooth Replacement. Nobelpharma, Nobel Industries Sweden, 1991.
11. Parel, S.M. and Lewis, S.G. The Aesthetic-cone: An Abutment Alternative for Esthetic Implant Restoration. *Esth Dent Update* 2(2):April, 1991.
12. Lemons, Jack. *Dental Implants Interfaces as Influenced by Biomaterials and Biomechanical Properties. The Dental Implant – Clinical and Biological Response of Oral Tissues*. Edited by McKenney, R. and Lemmons, J. PSG Publishing Co., 1985.

Titanium – The Metal of the Gods

P. Ralph Crawford, BA, DMD

Since G.V. Black invented amalgam in 1895, no metal has changed dentistry more than titanium.

Although it was discovered more than 200 years ago by William Gregor, a British clergyman, titanium's unique properties remained untapped for a century and a half. In fact, it took the demands of space-age technology and osseointegration – along with the discovery that white lead is toxic to humans – to bring titanium out of the wings and into the spotlight.

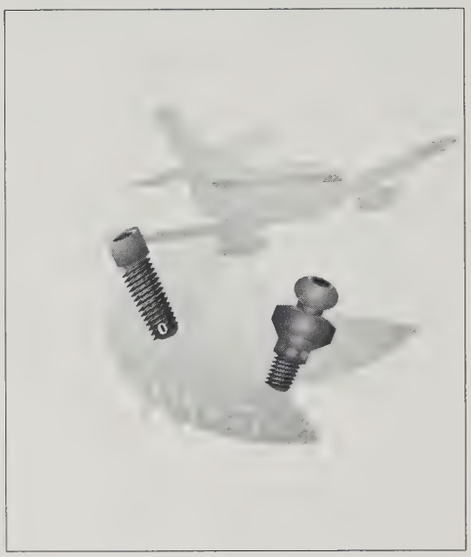
Ranked ninth in abundance among all the elements found on the earth's surface, Gregor's metal was named titanium – an allusion to the Titans of Greek mythology, the incarnation of natural strength – by the German chemist Martin Heinrich Klaproth in 1795.

Titanium does not exist naturally in its pure state, but is found as an oxide in the minerals ilmenite and rutile. About 95 per cent of the mine production of these titanium-bearing minerals is processed into titanium dioxide (TiO_2), with an annual output of three million tonnes. Most of the world's titanium is found in the mineral sands of Australia, Brazil, Canada and the United States.

With an atomic number of 22, titanium has a density that falls between aluminium (13) and iron (26). Unlike these two commonly-used metals, however, titanium has always been difficult to refine and is considerably more difficult to work. It took the great burst of technology that occurred after the Second World War for titanium's use to become commonplace in industry. For example, following the ban on the use of white lead, titanium dioxide became the primary pigment in the manufacture of paint, paper, printing ink, ceramics and plastics.

Aerospace industry

Only three per cent of the total mine production of titanium-bearing minerals is processed into pure titanium, a silver-white metal. The strength and light weight of this metal make it an ideal material for the aerospace industry, which accounts for about 45 per



cent of the world's total consumption of titanium. Alloyed with aluminum and vanadium, titanium is used in aircraft for fire walls, the outer skin, landing-gear components, hydraulic tubing, and engine supports. The compressor blades, disks, and housings of jet engines are also made of titanium, with a typical commercial jet containing between 300 to 1,000 kilograms of the metal.

In non-aerospace applications, titanium is found in the condensers used in power generators and desalination plants, where its ability to withstand saltwater corrosion makes it ideal. Down the road, the increasing demands for higher fuel efficiency and performance in the automobile industry will result in more and more titanium being used in passenger car components.

The construction industry is also looking at titanium with keen interest. The metal offers longer life, is maintenance free, light, and has various colorability, plus the appearance of a precious metal.

Osseointegration

Despite titanium's growing use in other areas, it was Per-Ingvar Branemark's innovative study of living bone in the mid 1960s that set an entirely new course for the space-age metal. Branemark, an orthopedic surgeon, implanted titanium chambers containing an optical system for transillumination and vital microscopy into the fibula of rabbits to study blood circulation in bone. When it came time to remove the titanium chambers, Branemark and his co-workers found that they were firmly fixed in the bones of the rabbits. Integration had occurred, and Branemark called the phenomenon osseointegration.

Biocompatibility

When titanium is used as an implant material, it forms an oxide layer of several nanometres thick that prevents direct contact between the potentially harmful metallic ions and the surrounding tissue. The research by Branemark and his Swedish team has shown that the exact border zone between titanium and bone consists of a proteoglycan layer, and that bone is not separated from the titanium surface by any fibrous membrane. The proteoglycan layer is partly calcified, and calcified tissue has been observed in direct continuity with the implant surface. This combination of biocompatibility with lightweight strength and ductility has made titanium the ideal implant material.

Casting Titanium

The next chapter to be written in the story of the "miracle metal" will concern its development for use in fixed and removable prosthodontic components. Titanium is light – one-quarter the weight of gold, one-third that of palladium and one-half that of nickel – it has low thermal conductivity and it leaves no metallic taste.

However, titanium's high melting temperature, easy oxidizing properties and low specific gravity makes it very difficult to cast. Current research with sophisticated casting machines, investments and welding techniques is leading to the rapid development of new techniques for routine laboratory procedures. When that day arrives, surely Titan will be well pleased with the uses to which dentistry has put the metal of the gods. ■

A 1992 Update on Hepatitis B Vaccination

John Hardie, BDS, M.Sc., FRCDC

Introduction

An effective serum-derived hepatitis B vaccine, Heptavax-B, was promoted in the early 1980s. It was replaced by a genetically-derived vaccine, which had the advantage of not depending on human blood donors, a few years later. The genetic vaccines, Recombivax-HB and Engerix-B, are now the vaccines of choice. New recommendations on the use of these vaccines were developed recently, based on a constant monitoring of their effectiveness and an epidemiologic surveillance of hepatitis B. These recommendations will be described from a dental perspective.

The Disease

More than five per cent (300 million people) of the world's population are chronic carriers of the hepatitis B virus (HBV).[1] During the past 15 years, the reported incidence of HBV infection, and HBV-related deaths, has more than doubled in North America.[1] For example, while only three cases of hepatitis B were reported in Canada in 1969, the number of cases had increased to 3,005 by 1987.[2] In spite of this, continental North America (excluding northern Canada) has one of the lowest rates of hepatitis B infection in the world.[2] Carrier rates in Canada are generally less than or equal to two per cent, compared to rates of seven to 20 per cent in East Asia and South Africa.[2] As a result, hepatitis B is still relatively rare in Canada, where it is not seen as a major public health problem, and is considered to be a disease of low individual and community risk.[1,3] This does not justify taking a complacent attitude toward HBV infection, however, as cost effective methods can and should be directed at curtailing the further spread of the disease. These methods are based on the demographics of the individuals at the highest risk for acquiring hepatitis B.

High Risk Groups

In the U.S.A. and Canada, hepatitis B is a disease of adolescents and young adults, with incidence rates peaking at 25 - 29 years.[1,4] High-risk activities include:

Dr. John Hardie

- Sexual contact (among homosexual men, and people with multiple heterosexual partners);
- I.V. drug abuse;
- Occupational exposures;
- Household contact with someone having an acute infection or with a chronic carrier;
- Receipt of clotting factor concentrates;
- Hemodialysis;
- Children born to infected mothers.

Between 1982 and 1988, there was a significant decrease of hepatitis B among homosexual men, which was probably the result of an alteration in high-risk activities rather than vaccination.[1] There has also been a considerable drop in the rate of hepatitis B among health care workers, presumably due to their participation in immunization programs.[4] Unfortunately, during the same period, the incidence of HBV infection increased from 15 to 27 per cent of the total population among I.V. drug users,[1] and an increasing number of cases were based on heterosexual transmission involving multiple sexual partners. The Centers for Disease Control (CDC) have defined multiple sexual partners as one new partner every six months.[4]

An appreciation of these facts may be used to design better vaccination programs.

The Vaccine

The two genetically-derived vaccines are based on recombinant DNA technology using Saccharomyces cerevisiae, i.e., common bakers' yeast. After three intramuscular doses of the vaccine, a protective antibody response is induced in more than 90 per cent of adults and 95 per cent of children.[4] (The level of hepatitis B surface antibody is approximately 10 milli-international units per mL.) The hepatitis B vaccine has not been demonstrated to interfere with other vaccines being given concurrently.[4]

Since dental personnel may have been previously exposed to active or chronic carriers of hepatitis B, and thus could have developed natural immunity, there may be some minimal value in determining their levels of hepatitis B surface antibody prior to initiating a planned vaccination program. However, there is some benefit to assessing the post-vaccination antibody levels of dental personnel, especially if an exposure to a contaminated sharp instrument should occur.

Fortunately, 15 to 25 per cent of those who do not respond after the initial HBV vaccine series will do so following an additional dose, and 30 to 50 per cent of the initial non-responders will respond after a further three doses.[4]

Recent studies[4] have demonstrated that successful vaccinees are virtually 100 per cent protected against clinical hepatitis B. In addition, long-term investigations of healthy adults and children have shown that the immunologic memory induced by the vaccine is effective for at least nine years.[4] As a result, it is believed that in cases where the immune status of adults and children remains normal (i.e., no immunodeficiency due to disease or medical treatment), no booster doses are required.[4]

The HBV vaccine appears to be devoid of any serious side effects. Over four million adults in the U.S. have been immunized, with the most frequent adverse effects being transient pain at the injection site (three to 29 per cent of vaccinees), and a slight increase in temperature (one to six per cent of vac-

TABLE I

Recommendations for hepatitis B prophylaxis following percutaneous exposure.

Exposed person	Treatment when source is found to be: HBsAg positive	HBsAg negative	Unknown or not tested
Unvaccinated	Administer HBIG x 1* and initiate hepatitis B vaccine+	Initiate hepatitis B vaccine+	Initiate hepatitis B vaccine+
Previously vaccinated			
Known responder	Test exposed person for anti-HBs 1. If adequate, no treatment 2. If inadequate, hepatitis B vaccine booster dose	No treatment	No treatment
Known non-responder	HBIG x 2 or HBIG x 1, plus 1 dose of hepatitis B vaccine	No treatment	If known high-risk source, may treat as if source were HBsAg positive
Response unknown	Test exposed person for anti-HB& 1. If inadequate HBIG x 1, plus hepatitis B vaccine booster dose 2. If adequate, no treatment	No treatment	Test-exposed person for anti-HBs& 1. If inadequate, hepatitis B vaccine booster dose 2. If adequate, no treatment

*Hepatitis B immune globulin (HBIG) dose 0.06 mL/kg intramuscularly.
+Hepatitis B vaccine dose – see Table I. / &Adequate anti-HBS is ≥ 10 milli-international units.

cinees).[4] A slight risk (less than 0.5/100,000 vaccinees) of Guillain-Barre syndrome developing following the administration of serum-derived HBV vaccine has been reported,[4] but this does not occur as a side effect of the genetically-derived vaccine. Media reports have suggested a relationship between the vaccine and chronic fatigue syndrome, however.[5] There are no Canadian or worldwide scientific studies which confirm such an association.

Recommendations

In health care settings, it is appreciated that people who have infrequent contact with blood or blood-contaminated body fluids have a low risk of occupationally acquiring hepatitis B.[4] This should be considered in preparing recommendations for dental personnel.

√ Office (Non-Clinical) Dental Staff

- Routine pre-exposure vaccination is not essential.
- More effective to consider post-exposure prophylaxis if an accidental exposure occurs.

√ Clinical Dental Staff

- Encouraged to be vaccinated on a voluntary basis, preferably while in training.
- Post-vaccination determination of hepatitis B surface antibody one to six months after vaccine series.
- Booster doses not necessary.
- Staff who have acute hepatitis B or are chronic carriers should seek expert medical advice regarding their potential risk to patients.

√ Vaccination of General Public

- All infants, regardless of the hepatitis B status of the mother.
- Adolescents especially in communities with a high incidence of intravenous drug abuse, teenage pregnancies, and sexually transmitted diseases.
- Sexually active homosexual and bisexual men.
- Sexually active heterosexual men and women, especially those having multiple sexual partners and/or sexually transmitted diseases.
- Household contacts and sex partners of individuals who have acute hepatitis B or are chronic carriers.
- Travellers visiting, for more than six months, areas where there are high rates of hepatitis B infection, and where close contact with the local population is anticipated.

√ Vaccination of Specific Groups:

- Staff and residents of institutions for the mentally disadvantaged.
- Hemodialysis patients.
- Recipients of clotting factor concentrates.
- Prison inmates.

Post-Exposure Prophylaxis

Prophylactic measures to avoid hepatitis B infection following exposure to HBV are valid and effective. Such measures should be considered following:

- Perinatal exposure of an infant born to a mother positive for the hepatitis B surface antigen.
- Accidental exposure via non-intact skin or non-intact mucosa to blood positive for the hepatitis B surface antigen.
- Sexual exposure to a hepatitis B antigen-positive person.
- Household exposure of an infant less than one year old to a primary care giver with acute hepatitis B.[4]

The specific preventative measures depend upon the vaccine status of the exposed person, and the hepatitis B status of the source person. This relationship is illustrated in **Table I.**

Summary

Surveillance studies of people at high risk for hepatitis B, combined with almost 10 years of experience with the vaccine, have allowed cost effective vaccination programs to be devised. It would make good sense to incorporate the hepatitis B vaccination into the standard childhood immunization protocols. Present teenagers, who will not benefit from such a program, would be well advised to be vaccinated. All clinical dental staff should also be immunized. These three actions would be very effective in curbing the spread of this preventable disease.

Dr. John Hardie *is head of the department of dentistry at Vancouver General Hospital.*

Reprint requests to **Dr. J. Hardie**, *Head, Department of Dentistry, Vancouver General Hospital, 855 West 12th Avenue, Vancouver, B.C. V5Z 1M9.*

References

1. Krahn, M.D. and Detsky, A.S. Universal hepatitis B vaccination: the economics of prevention. *Can Med Assoc J* 146(1):19-21, 1992.
2. Baker, P. *The Hepatitis Primer, A Guide to Understanding One of the World's Most Contagious Infectious Diseases*. Canadian Liver Foundation, 1990.
3. Laboratory Biosafety Guidelines. Medical Research Council of Canada (MRC). Health and Welfare Canada, 1990.
4. CDC, Hepatitis B Virus: A Comprehensive Strategy for Eliminating Transmission in the United States Through Universal Childhood Vaccination. Recommendations of the Immunization Practices Advisory Committee (ACIP). *MMWR* 40(No RR-13):1-25, 1991.
5. Hepatitis B, Issues, Health Protection Branch, Health and Welfare Canada, 20th January, 1992.

Prosthodontic rehabilitation of a patient with mucormycosis

Randall David Mazurat, B.Sc., DDS
Winnipeg, Manitoba
Barry M. Goldman, DDS, MS
Augusta, Georgia

Introduction

Mucormycosis is the term used to describe a relatively uncommon opportunistic fungal infection that can result in high mortality and leave surviving patients with long-term devastating defects. The prosthodontic rehabilitation of these individuals is complicated by the varied presentation of intra- and extraoral defects, which often differ from the defects that occur subsequent to tumor resection. This is due to the dissemination of the fungi and the aggressive surgical debridement required to manage the disease. A discussion of the disease process of mucormycosis and a case report outlining the prosthetic management of the condition are presented.

The Disease Process

Mucormycosis presents in diverse forms, which have been classified as rhinocerebral, pulmonary, widely disseminated, gastrointestinal and cutaneous. The causative fungi are species of the genera Mucor, Rhizopus, Absidio and Mortievella, members of the order Mucovales.[1] Mycoses of the nasal cavity or sinuses may occur as an acute episode of sinusitis or as a chronic recurrent sinusitis. A distinction is made between the non-invasive or superficial forms, which may cause local damage, and the invasive or fulminant form. Otherwise healthy patients may contact the disease, although in nearly all cases fungal diseases of the maxillary sinuses are thought to be secondary infections. The pathologic conditions for these diseases are created by chronic recurrent sinusitis.[2]

Infection is believed to initiate in the nose. It then spreads into the large sinus cavities from an infected anterior ethmoid sinus, due to the dependency on the large sinuses for ventilation and drainage through the anterior ethmoids. The spread of the infection into the orbital region is common, and may predispose the patient to the most devastating form of the disease, rhinocerebral, which involves the brain. The literature is unclear as to whether rhinocerebral mucormycosis is a progression of the paranasal or rhino-orbital forms of the disease. There is also some uncertainty as to the effect host response has on the progression or ultimate outcome of the disease. The greatest dangers are vascular complications, such as aneurysms of the veins and arteries of the base of the skull and frontal sinus, and sinus thrombosis with direct CNS involvement. The predilection of the disease for arteries, and the resulting vascular insufficiency, leads to a form of dry gangrene, although invasion via lymphatics and regional nerves has also been reported.[3]

Diagnosis

A diagnosis is often suggested by developing orbital signs that reflect the compromise of the cranial nerves as the disease progresses toward the brain. The prominent characteristics include debilitation beyond that usually experienced with sinusitis only, and production of a black necrotic exudate.[1,3]

A reliable diagnosis is based on a transnasal biopsy in which a pathologic examination as well as a culture are performed. Due to the rapid invasive nature of the mucormycosis, death can occur within three to five days after nasal invasion. It is imperative that this disease be considered during differential diagnosis in all cases of sinusitis in patients with the following predisposing local factors:

1. Diabetes
2. Lowered resistance to disease following tumor removal
3. Radiation therapy
4. Cytostatic and immunosuppressive treatment
5. Long-term cortisone and antibiotic regimens
6. Acquired immunodeficiency syndrome (AIDS)[4-6]

The appearance of an underlying disease process appears to be an important indicator of patient survival, with reports of 75 per cent survival in patients lacking systemic disease, 60 per cent survival in diabetics, and only 20 per cent in patients who are immunosuppressed.[4] The association between diabetes and rhinocerebral mucormycosis should especially be noted, as diabetes is the most common predisposing condition associated with this form of the disease.[3,5]

Treatment

Successful treatment is dependent on an early diagnosis and a combined treatment approach that consists of:

1. Antibiotic therapy with Amphotericin B
2. Aggressive surgical debridement
3. Control of underlying disease states

Amphotericin B is the most reliable

Fig. 1: Post-surgical silicone foam obturator.

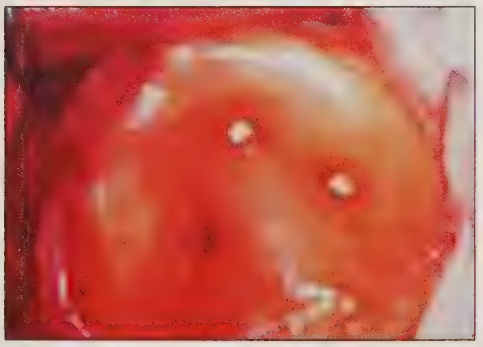


Fig. 2: A definitive obturator with a solid silicone rubber bulb and an acrylic resin lid duplicating palatal contour.

Fig. 3: The obturator with anterior teeth added.

Fig. 4: The maxillary obturator with a hollow silicone bulb and with teeth added.

single agent for the treatment of mucormycosis, as other antifungal agents have not shown a consistent activity in the treatment of the disease. Amphotericin B has been shown to dramatically increase patient survival rate, in diabetics from 37 to 79 per cent, and in patients with other systemic diseases from 0 to 47 per cent.[4] The amount and duration of medication is modified based on the clinical response. Amphotericin B is nephrotoxic as well as fungistatic, and the side effects may complicate and prolong the treatment regimen.[1,3]

Surgical debridement is indicated in almost every instance of mucormycosis, and can range from the endoscopic removal of necrotic tissues to the total removal of the palate and maxillae. Orbital spread may result in orbital exoneration. Surgical procedures are aimed at removal of the necrotic tissue and will vary depending on the extent of the infection.[1] The resultant intraoral defects may differ somewhat from the defects subsequent to tumor removal because: 1) mucormycosis spreads rapidly, involving contiguous structures, and as a result the defects are large and often occur bilaterally. The surgical margins are also less likely to spare key anatomic structures that are essential

Fig. 5: The surgery defect six months post surgery.

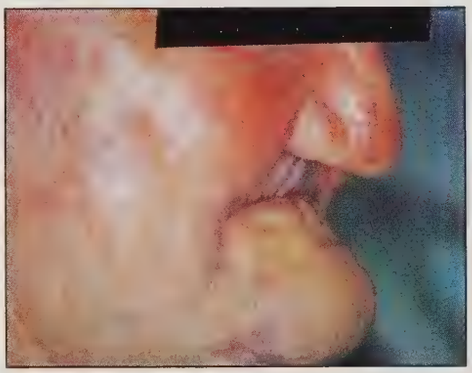


Fig. 6: The patient profile without prostheses.

for optimum obturator support and retention; 2) The necessity for early, aggressive, and often repeated debridement of necrotic tissue, and the desirability of monitoring the surgical site, preclude the use of skin grafting procedures during the initial surgical phase.[1,5,7] As a result of the disease and the surgical debridement, approximately 70 per cent of survivors experience severe local defects.[4]

The desirability of controlling underlying disease, especially diabetic ketoacidosis, is well supported in the literature. It is believed that this increases the effectiveness of the other phases of treatment and slows the invasion of the disease.[1,5] Alternative treatment modalities are scant, possibly due to the high clinical mortality, relatively low incidence, and the need for early aggressive management. A recent adjunct in the treatment of rhinocerebral mucormycosis is the use of hyperbaric oxygen.[8]

Prognosis and Rehabilitation

Prior to 1970, a survival rate of 50 per cent was reported, with subsequent studies showing an improved survival rate of 70 per cent.[4] The underlying disease state plays an important role in prediction of survival, with the poorest survival rate seen in immunosuppressed patients. Although the incidence of mucormycosis is increasing, an improved prognosis due to early diagnosis and combined treatment is seen.[5] The result of successful treatment is an increased need for secondary reconstruction, psycological support and therapy, and prosthodontic rehabilitation of the extra- and intraoral defects.[1,7]

Fig. 7: The patient profile with the definitive prostheses inserted.

The disease process and the method of surgical management used to treat it often result in a severe local defect possessing poorly defined margins and which is unlikely to be grafted. These factors adversely affect the support and retention of a prosthesis, and significantly affect the patient's prosthodontic rehabilitation.

Case Report

A 72-year-old white male was referred to the out-patient dental clinic one month subsequent to the diagnosis and surgical management of mucormycosis. The surgical notes indicated that the patient had presented with an ulcerative lesion of short duration at the junction of the hard and soft palate. A CT scan revealed a large soft tissue mass involving the nose and hard palate, with erosion of the hard palate. Prime differential diagnoses were midline lethal granuloma and Wegener's granulomatosis. A subsequent biopsy was positive for mucormycosis.

Surgery was performed, with debridement resulting in the loss of the maxillae and hard palate, the nasal septum, the inferior, middle and superior turbinates, and the medial and posterior maxillary sinus walls. The surgical defect extended superiorly and posteriorly to follow the roof and posterior nasopharyngeal walls and laterally to the lateral walls of the maxillary sinuses. A communication existed anteriorly with the nasal aperture and posteriorly with the nasopharynx. A remnant of the soft palate remained, which produced a cir-

cumferential fibrous and/or bony rim approximately one centimetre in width around the entire defect, at the level of the resected hard palate. Intraorally, remnants of the turbinates, nasal septum and auditory tube openings were evident. The defect was lined by respiratory mucosa.

The patient had been diagnosed as having diabetes mellitus Type II, a peptic ulcer and rheumatoid arthritis, all of which were treated in conjunction with the mucormycosis. The surgical removal was uneventful and a prosthodontic consultation was requested following the surgery and stabilization of the patient.

Ideally, the consultation should have occurred prior to surgery in order to allow dental input as well as the fabrication of an immediate surgical obturator. With the consultation occurring one month postoperatively, the initial treatment after examination was the fabrication of a post-surgical obturator (**Fig. 1**). Following the insertion of the silicone foam obturator, the patient was able to discontinue tube feeding and progress to a liquid and then a soft diet. He regained the ability to speak intelligibly and was able to manage fluids more effectively. The resumption of speech and the improvement in mastication and deglutition were of definite psychological benefit. Follow-up care was provided on a biweekly basis to allow adjustment and modification of the obturator as healing progressed. The postoperative recovery was complicated by the development of an opportunistic staphylococcal infection, which necessitated the isolation of the patient for a two-week period and treatment in the ward.

Upon discharge from hospital, the patient was seen monthly, or as required, in order to provide adjustments and modification of the silicone foam obturator. This type of obturator offers the advantages of being lightweight and is easily inserted and removed by the patient. However, it does have the disadvantages of low strength and durability, and it is difficult to maintain in a hygienic state due to the porosity of the foam and the composition of the tissue conditioner used to modify the obturator as healing progresses. Three months post surgery, a replacement obturator was required to replace the post-surgical foam obturator, which was becoming unserviceable due to its deterioration. The replacement obturator consisted of a solid bulb constructed of a silicone rubber resilient liner (Molloplast-B, Kostner and Co., Germany), and an acrylic resin lid that duplicated normal palatal contour (**Fig. 2**). The remnant structures comprising the superior aspect of the defect were lined by respiratory mucosa, and were therefore unable to tolerate pressure to the extent that they could provide adequate support for the obturator. The primary support was therefore provided by engaging the circumferential bony and fibrous rim that encircled the defect, and not by the superior surface of the surgical defect. Retention was achieved by engaging a portion of the available undercut in the anterior nasal aperture and posterior nasopharynx. Access to these areas was facilitated by the resiliency of the silicone rubber. Care was taken to ensure that adequate space existed for respiration and that patient insertion and removal were convenient.

The patient reported an improvement in mastication due to the presence of the hard palatal surface and his family deemed that speech was also improved. While he related that he preferred eating with the obturator, he was able, if necessary, to swallow liquids and soft foods without the prosthesis in place. However, intelligible speech was impossible without the obturator.

Three weeks post insertion, anterior teeth were added to the obturator with autopolymerizing resin (**Fig. 3**). The lip support provided by the anterior teeth and the nose support provided by the extension into the anterior nasal aperture improved the facial esthetics. The patient was followed-up on a regular basis to provide adjustments and monitor the surgical site. He adapted well to the solid bulb obturator and related that he had resumed his former lifestyle and was content with his progress.

During this follow-up phase, the patient and his family were consulted in regard to further prosthetic rehabilitation, specifically the construction of maxillary and mandibular complete dentures. It was hoped that further improvement in function and esthetics would be attained with the use of a mandibular complete denture. As well, the maxillary obturator could be modified to reduce the weight, thereby improving patient comfort. The maxillary obturator and mandibular complete denture were fabricated six months post-surgery using conventional denture fabrications, techniques and materials. Modifications were incorporated in construction of the maxillary obturator to reduce the weight. It was hollow and its superior surface had a resilient silicone rubber lining (**Fig. 4**). The insertion of these definitive prostheses and subsequent post insertion care were uneventful. The patient adapted well in terms of regaining a limited capacity for mastication as well as near normal deglutition and speech. There was a positive psychological benefit, and the patient had maintained a very positive and cooperative attitude from the onset (**Figs. 5, 6, 7**).

The rehabilitation of acquired soft and hard tissue defects can pose both short- and long-term problems, and the recovery phase requires ongoing attention and modifications of the post-surgical obturator. The definitive reconstruction phase may be lengthy, frustrating and result in less than optimal results. However, although the method of reconstruction may vary depending on the specific patient presentation, the significance lies in the fact that the situation is manageable, the derived patient benefits are unquestionable, and the devastating consequences that result as an aftermath of mucormycosis may be appreciably lessened. ■

Dr. Mazurat *is an assistant professor with the department of rehabilitative dental science, faculty of dentistry, at the University of Manitoba, 780 Bannatyne Ave., Winnipeg, Man. R3E OW2.*

Dr. Goldman *is a professor with the department of prosthodontics, School of Dentistry, Medical College of Georgia.*

Reprint requests to **Dr. Mazurat**.

References

1. Lehrer, R.I. Moderator mucormycosis. *Ann Intern Med* 93:93-108, 1980.
2. Stammberger, H. Endoscopic surgery for mycotic and chronic recurring sinusitis. *Ann Otol Rhin Laryngol* 94(Suppl 119):1, 1985.
3. Pillsbury, H.C. and Pischer, N.D. Rhinocerebral mucormycosis. *Arch Otol* 193:559-604, 1977.
4. Blitzer, A., Lawson, W., Myers, B.R. et al. Patient survival factors in paranasal sinus mucormycosis. *Laryngoscope* 90:635-648, 1980.
5. Parfrey, N.A. Improved diagnosis and prognosis of mucormycosis. *Medicine* 65:113-123, 1986.
6. Cuadrado, L.M. et al. Cerebral mucormycosis in two cases of acquired immunodeficiency syndrome. *Arch Neurol* 45:109-111, 1988.
7. Kurrasch, M., Beumer, J. and Kagawa, T. Mucormycosis: Oral and prosthodontic implications. A report of 14 patients. *J Prosthet Dent* 47:422-429, 1982.
8. Couch, L., Theilen, F. and Mader, J.T. Rhinocerebral mucormycosis with cerebral extension successfully treated with adjunctive hyperbaric oxygen therapy. *Arch Otol Head Neck Surg* 114: 791-794, 1988.

Treatment of anterior cross-bites in the early mixed dentition

Paul W. Major, DDS, M.Sc., MRCD(C)
Kenneth Glover, B.Sc., DDS, MSD, MRCD(C)
Edmonton, Alberta

ABSTRACT

The diagnosis and treatment of anterior cross-bites are described by categorizing anterior cross-bites into three groups. Appropriate appliance therapy is described in sufficient detail to enable the general dental practitioner to provide interventional treatment.

SOMMAIRE

Dans cet article, on explique la façon de diagnostiquer et de traiter les occlusions croisées antérieures. On les a divisées en trois groupes et on donne assez de précisions touchant la bonne façon de les corriger avec des dispositifs pour que le praticien général puisse exécuter des traitements d'intervention.

Introduction

Anterior cross-bite is the term used to describe an abnormality in the anterior posterior plane, whereby a mandibular tooth (teeth) is positioned anterior to a maxillary tooth (teeth). The condition, which has a reported incidence of four to five per cent,[1-3] usually becomes evident during the early mixed dentition phase. When this occurs, the pediatric or family dental practitioner is called on to recognize anterior cross-bite and provide appropriate treatment to eliminate its potentially far-reaching negative effects.

Anterior cross-bites can be classified into three groups, each with specific diagnostic criteria and treatment requirements.

Simple Anterior Cross-bite (dental malposition)

Patients presenting with this type of cross-bite have a normal anterior posterior skeletal relationship, with normal facial profile in centric relation and centric occlusion. The mandible has a smooth arc of closure into an Angle Class I molar relationship, with coincident centric relation and centric occlusion positions. The maxillary incisor is generally retroclined and the mandibular incisor may also be proclined, thereby producing abnormal labial-lingual axial inclination.

Simple anterior cross-bites are generally the result of an abnormal eruption of the permanent incisors. Various etiologic factors may be involved, including: trauma to the primary incisors with displacement of the permanent tooth bud; delayed exfoliation of the primary incisor with palatal deflection of the erupting permanent incisor; supernumerary anterior teeth; odontomas; congenitally abnormal eruption patterns; and arch perimeter deficiency (crowding).[4] In patients presenting with maxillary anterior crowding, the maxillary lateral incisor is frequently positioned into cross-bite. During development, the permanent lateral incisor is located palatal to and is overlapped by the permanent central incisor[5] (**Fig. 1**). The amount of overlap depends on the space available for the lateral incisor. If insufficient space is available in the dental arch for the maxillary permanent lateral incisor to move labially before its emergence, the tooth will change its path of eruption and become palatally positioned in cross-bite. The occlusion with the mandibular incisors interferes with spontaneous improvement of the palatally positioned maxillary incisors.

Prevention of the condition, through the early diagnosis and management of abnormal primary incisor resorption, supernumeraries and arch perimeter deficiency, is the best treatment. Routine radiographic imaging of the maxillary incisor region at the beginning of the early mixed dentition stage of dental development is recommended. The risk of developing simple anterior cross-bites will be reduced by managing severe arch perimeter deficiency with serial extraction. Early correction of the cross-bite to prevent labial displacement of the opposing mandibular incisor and subsequent apical migration of the gingival tissue is indicated.[4,6,7] Occlusal trauma with abnormal wear can also occur.

A retroclined maxillary anterior tooth can be effectively corrected using a removable appliance, since tipping movements are generally appropriate in this situation. There are a number of designs for removable appliances, but to be effective, the principles of retention, force application and anchorage must be observed, and adequate space must be provided. This may involve slenderizing the mesial surface of the primary cuspids, or in cases with more severe crowding, the extraction of primary cuspids.

The appliance illustrated in **Fig. 2** is very effective.[8] Retention is provided by both modified Adams clasps, which are placed on the first permanent molars, as well as the labial bow. Additional retention may be obtained by placing ball clasps between the first and second primary molars. In cases where the first permanent molars are unerupted, a "double arrowhead clasp" from the mesial of the first to the distal of the second primary molars can be used.

The labial bow can be soldered to the clasps or brought across the occlusal surface between the first and second deciduous molar. As well as providing retention, the labial bow acts as a limitation for anterior tooth movement during anterior cross-bite correction. It should be symmetrically formed into an ideal arch form, passively contacting the junction of the middle and gingival thirds of the teeth not in cross-bite. A double helix cantilever spring forms the active component of the appliance. The spring is designed so that there is no more than 4.0 mm between the posterior and anterior arms of the helical component. To achieve this, the coils should not exceed 3.0 mm in diameter. The free end is located adjacent to the marginal ridge farthest from the ideal arch form. To ensure even force across the tooth and access for activation, the spring should be 2.0 mm wider than the

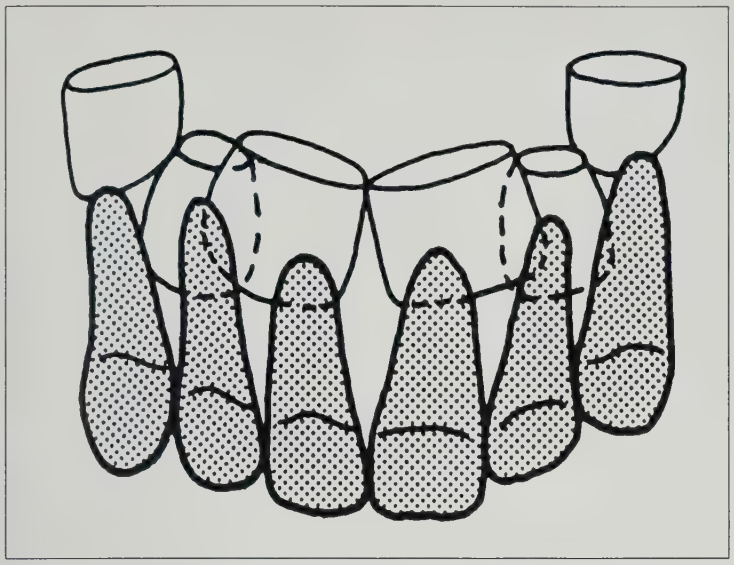


Fig. 1: Permanent incisor position during dental development.

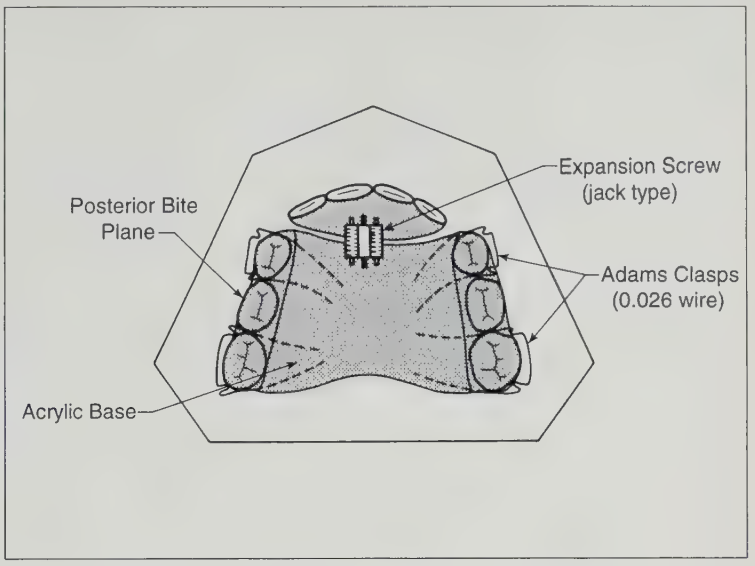


Fig. 3: Expansion screw anterior cross-bite appliance.

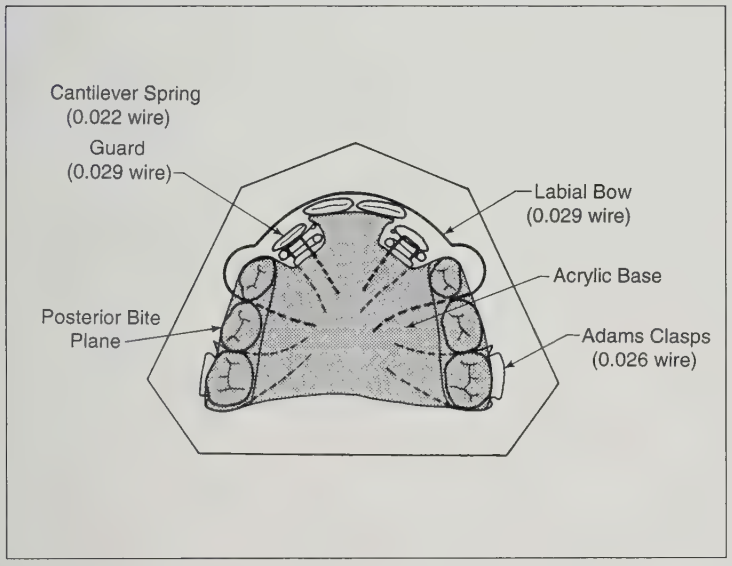


Fig. 2: Double helices cantilever spring anterior cross-bite appliance.

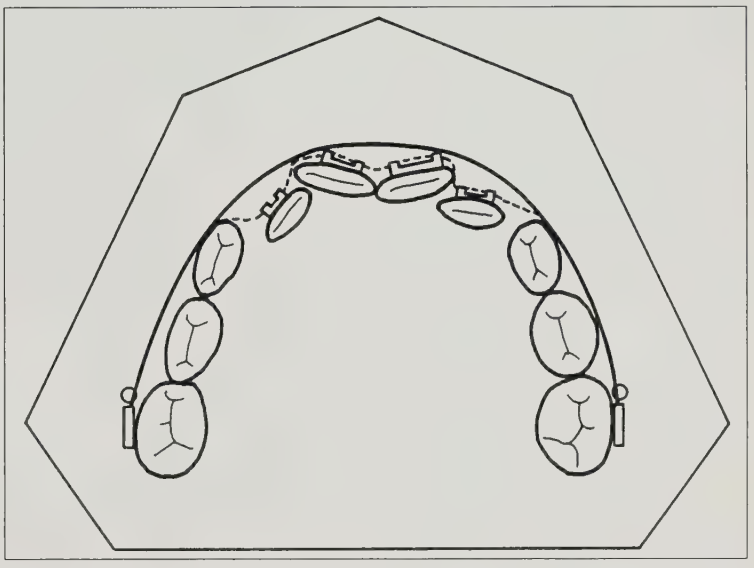


Fig. 4: Anterior alignment and cross-bite correction with partial fixed banding. (The flexible arch wire is formed to an ideal arch from its passive position. When distorted and attached to misplaced teeth, it returns toward the passive position, bringing the teeth with it.)

tooth being moved. The distal helix is wound superiorly and the anterior helix is wound inferiorly. The anterior arm should be as close to the lingual gingival margin as possible and be directed as close to perpendicular to the long axis of the tooth as possible. A guard wire is placed over the spring to keep it in contact with the tooth near the gingival margin. Acrylic is extended over the occlusal surfaces of the posterior teeth to open the bite adequately to allow the incisor to advance without occlusal trauma.

The appliance should be activated every four weeks by opening both helical coils equally so that approximately 2.0 mm of compression is required to seat the appliance. As tooth movement occurs, the guard wire is adjusted to touch the lingual tooth surface. As long as adequate space to accommodate repositioning is provided, and the patient cooperates, tipping tooth movement will take place quickly (1.5 mm per month). Failure may occur due to inadequate space, inadequate appliance retention, improper activation or poor patient cooperation.

Once a positive overbite and overjet are established, the occlusal relationship will retain the corrected tooth position. If the tooth is not fully erupted the bite pads can be removed. The now passive appliance should be worn as a retainer until a positive overbite is established.

Functional Anterior Cross-bite (pseudo Class III)

Patients presenting with this type of cross-bite have an anterior shift of the mandible during closing.[7] In centric relation, the opposing incisors generally contact edge to edge, with the molars separated but in an Angle Class I relation. As the mandible shifts forward into centric occlusion, the incisors are placed into cross-bite and the molars into a Class III tendency relation. In centric relation or relaxed postural position, the patient presents with a normal facial profile convexity. However, when closed into centric occlusion, the patient will have a straight or concave facial profile. The maxillary incisors are generally retroclined and the mandibular incisors may be proclined.

Treatment should be undertaken as soon as possible to eliminate the functional mandibular shift since the incisors are subject to occlusal trauma and abnormal wear patterns. The forward positioning of the mandible may, over time, alter the patient's growth pattern, resulting in a skeletal Class III pattern.[7]

Keep Smiling in '92

CDA offers everything you need to keep your patients smiling in '92!
Buttons. Balloons. Magnets and mugs.
Appointment cards and T-shirts too.
A new colouring book for kids...
And a whole lot more.

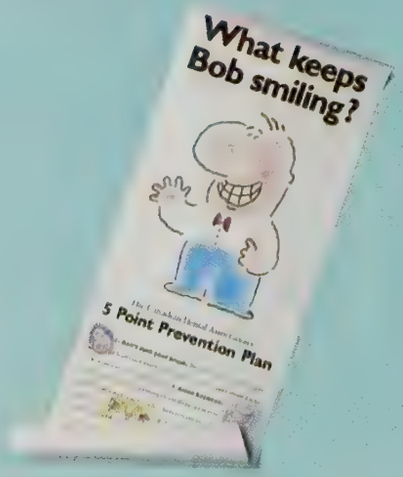
Order your Keep Smiling materials today.

If you're a CDA or CDHA member, you can save 25% — and that's something to really smile about.

Bob Poster

Size 12 1/4" x 36"

CDA members: $0.75
Regular price: $1.00



T-Shirt

One size—Extra Large.

CDA members: $9.75
Regular price: $13.00

Golf Shirt

Available in S, M, L, XL.

CDA members: $27.00
Regular price: $36.00

Sweatshirt

Also available in S, M, L, XL

CDA members: $30.00
Regular price: $40.00

Bob's Radio Commercial

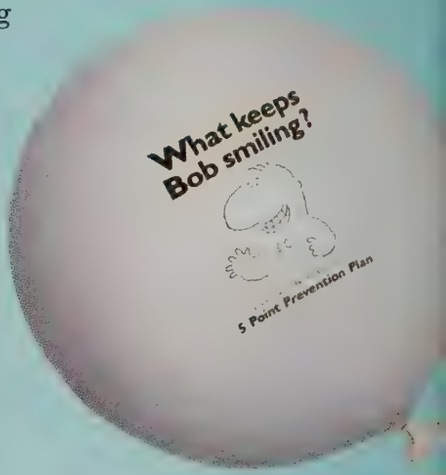
A 30-second public service announcement for use by all local and regional media relations organizers during Dental Health Month.

CDA members: $10.00
Regular price: $13.50

Display Balloon

A BIG balloon - it inflates to 40 inches around - for displays and exhibits.

CDA members: $11.75
Regular price: $15.75



Celebration Poster

More than a poster - an original work of art! Created by renowned Canadian illustrator John Fraser, this full-colour print captures the spirit and warmth of "A Celebration of the Smile". It'll look great in your office or waiting room.
Approx. 18" x 24"

CDA members: $0.95
Regular price: $1.30

Colouring Book with Crayons

This brand new children's colouring book is 16 pages full of pictures to colour and games to play. It is both fun and educational. Ideal for the waiting room, or as a take-home gift.
(Includes colourful crayon set.)

CDA members: $2.80
Regular price: $3.75

Bob Ceramic Mug

New ceramic mug, emblazoned with Bob and the CDA logo.

CDA members: $8.25
Regular price: $11.00

Table Talker

Put it on a waiting room table and on your office desk. Display it in the reception area. Give it to patients as a jumbo reminder of the Five Point Prevention Plan.
Folds to 3 1/2" by 8".

CDA members: $0.55
Regular price: $0.75

BIG Bob - Special Order

And we mean BIG. He stands 5'3" tall. Put him in your waiting room and watch the big smiles he gets. This special order item will be made available if CDA receives sufficient orders.

CDA members: $75.00
Regular price: $100.00

Balloons

Package of 50

CDA members: $11.25
Regular price: $15.00

Buttons

Package of 25

CDA members: $10.50
Regular price: $14.00

Celebration Planning Kit

For community organizers. This kit is brimming with ideas, activities and tips that will help you bring a Celebration of the Smile to your community.

CDA members: $4.75
Regular price: $6.50

Magnetic Bob

Such an attractive character! Give him to patients to stick on refrigerators and filing cabinets. Single unit or package of 25

CDA members: $0.55/1; $10.50/25
Regular price: $0.75/1; $14.00/25

Stickers

A perfect giveaway to young patients (and to the young at heart!). Roll of 100

CDA members: $5.98
Regular price: $7.98

Appointment Cards

With the 5 Point Prevention Plan and space for the patient's next visit. Fits in their wallet.

CDA members: $25.00
Regular price: $34.00

Bob Live

Bob has come to life as a lovable full-size costumed mascot. He'll bring smiles and excitement to activities and events in your office or your community. The Bob costume is available for rental.

$100.00/Day $200.00/Week $1500.00/Year

Bob, the 5 Point Prevention Plan and the Keep Smiling message are part of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Order your Keep Smiling materials today by mail or call our toll free numbers.

1. **By mail:** Complete and mail the attached form along with your cheque, money order or VISA/MC number.
2. **By phone:** To place your order call:
   1-800-267-6354 (Western Canada, Nfld. and Lab.)
   1-800-267-6364 (Eastern Canada)
   Please have your VISA or MasterCard number and expiry date ready. Please call during business hours 8:30 to 4:30 Eastern time, Monday to Friday.

Shipping and handling: All orders will be sent by first class mail with prepaid shipping charges as follows: under $29.99 = $4.50; $30.00-$99.99 = $7.00; over $100.00 = $11.50; over $250.00 call our toll-free numbers for applicable charges.

Please print or type
Complete and mail to: **The Canadian Dental Association**
Order Section, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

Name:

Address: Suite #:

City: Province: Postal Code:

Telephone: ( ) CDA or CDHA Membership Number:

_____ Cheque / money order enclosed _____ VISA _____ MasterCard

Number: Expiry date:

Item	Quantity	Unit $. Mem.	Unit $. Regular	Total
Appointment Card *(Pkg. 500)*		**25.00**	34.00	
Balloons *(Pkg. of 50)*		**11.25**	15.00	
Bob Ceramic Mug		**8.25**	11.00	
Bob Poster		**0.75**	1.00	
Buttons *(Pkg. of 25)*		**10.50**	14.00	
Celebration Planning Kit		**4.75**	6.50	
Celebration Poster		**0.95**	1.30	
Colouring Book *(with crayons)*		**2.80**	3.75	
Display Balloon		**11.75**	15.75	
Golf Shirt* S M L XL		**27.00**	36.00	
Live Bob		100./day 200./wk 1500./yr		
Magnetic Bob		**0.55/1; 10.50/25**	0.75/1; 14.00/25	
Radio Commercial		**10.00**	13.50	
Stickers *(Pkg. of 100)*		**5.98**	7.98	
Sweatshirt* S M L XL		**30.00**	40.00	
T-Shirt		**9.75**	13.00	
Table Talker		**0.55**	0.75	
Special Order *(Only available if sufficient orders are received)*				
Display Bob		**75.00**	100.00	

*Please circle shirt size

Please allow 4-6 weeks for delivery

DENTAL HEALTH presents Good For Life

Total Order	
Shipping	
(Total Order + Ship.) = **Sub Total**	
Please add **7% GST** (No.:R106845209) to Sub Total	
Ont. Residents please add **8% PST** to Sub Total	
TOTAL	

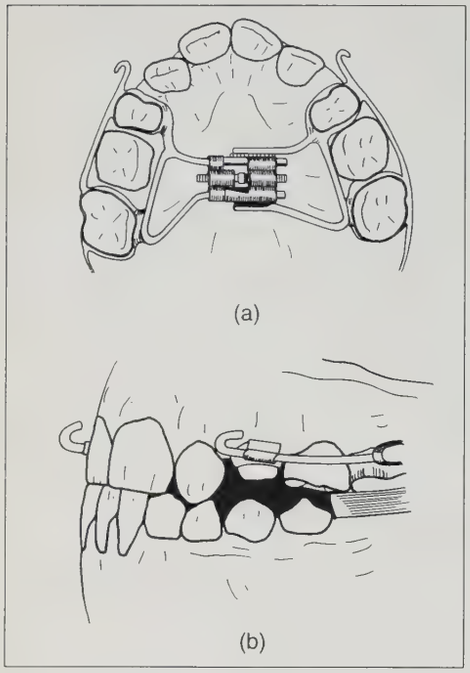


Fig. 5: Modified Hyrax expansion appliance.

Predictable treatment results can be obtained using the removable appliance illustrated in **Fig. 3**. Appliance retention is achieved with modified Adams clasps on the first permanent molars and primary first molars. A double-pinned expansion (Jack) screw splits the anterior palatal acrylic from the rest of the appliance. This expansion screw should be positioned 90 degrees to the maxillary incisors. The posterior acrylic is extended over the occlusal surfaces to allow for free incisor movement.

Activation is achieved by opening the threaded, central portion of the screw one-quarter turn per week. The patient's parents are instructed on proper appliance adjustment, and the patient should be clinically monitored every four weeks. With proper appliance retention and patient cooperation, the incisor segment may be advanced 1.0 mm per month. Retention is generally not required if there is a positive overbite at the end of treatment. Occlusal equilibration of the primary molars may be necessary to establish adequate interdigitation.

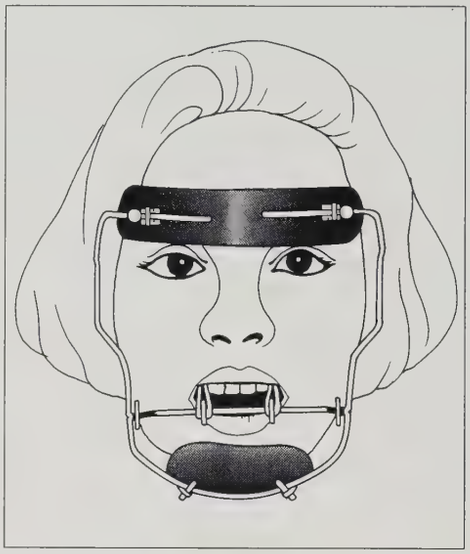


Fig. 6: Protraction headgear.

Partial fixed banding is very useful in patients presenting with large incisor rotations or anterior posterior irregularities of the adjacent incisors (**Fig. 4**). Bands with orthodontic brackets are placed on the first molars and orthodontic brackets are bonded onto the maxillary incisors. A flexible arch wire such as a cinched back .015 braided or .016 nickel titanium wire is used to achieve initial alignment. A stopped and advanced .016 stainless steel wire, bent to the patient's arch, is used to advance the incisors after initial alignment is achieved. Placement of "tip" bends in the arch wire mesial to the first permanent molar will allow changes in the vertical incisor position. The overbite may be increased or decreased, as required.[9]

Skeletal Anterior Cross-bite (Class III)

Patients presenting with a true skeletal Class III malocclusion will have a straight or concave facial profile in centric relation. In contrast to the functional anterior cross-bite, there will be a Class III molar relation and an anterior cross-bite in centric relation. The maxillary incisors are often proclined and the mandibular incisors retroclined as dental compensation for the skeletal discrepancy. In some cases, a forward mandibular functional shift will further increase the apparent severity of the skeletal problem.

Differential diagnosis of the location of the skeletal problem is important. Maxillary deficiency is indicated by a flattening of the infraorbital rim and the area adjacent to the nose. Very often, patients will appear to have "droopy" lower eyelids and show excessive sclera. While looking at the patient in profile, the practitioner should use his or her hand to block out the patient's lower lip and accentuate the midface. In a well-balanced face, there is a convexity extending from the inferior border of

TABLE I
Differential Diagnosis of Anterior Cross-bite*

	Simple	Functional	Skeletal
Etiology → ↓ Characteristics	**Dental malposition ectopic eruption**	**Centric prematurity anterior CR-CO shift**	**Maxillary hypoplasia and/or Mandibular hyperplasia**
Molar CR	Angle Class I	Angle Class I	Angle Class III
Molar CO	Angle Class I	Angle Class III	Angle Class III
Profile CR	straight	straight	concave
Profile CO	straight	straight or concave	concave
Mandibular closure	smooth arc	anterior shift	smooth arc
Treatment	orthodontic tooth movement (tipping)	orthodontic tooth movement (tipping) equilibration	orthopedic correction

Modified from: David, J.M., Law, D.B. and Lewis T.M.* ***An Atlas of Pedodontics,* *Philadelphia, W.B. Saunders, 1981.*

the orbit through the alar base of the nose down to the corner of the mouth. A straight or concave tissue contour indicates a midface deficiency. Similarly, with the head positioned naturally, the patient's chin position can be evaluated by using two fingers to block out the upper and lower lips. The chin should not be positioned anterior to a vertical line extending down from the soft tissue nasion. It is important to realize that facial convexity normally decreases as the patient matures. A degree of chin prominence that would be normal in an adult may suggest a Class III skeletal pattern in a young child. Cephalometric analysis is commonly used to differentiate between maxillary retrusion and mandibular protrusion. The ANB angle in Class III patients is generally negative. Maxillary deficiency is evidenced by a smaller than normal SNA angle, while mandibular excess is evidenced by a larger than normal SNB angle. Unfortunately, cephalometric analysis is potentially misleading and should not replace a careful clinical assessment.[10]

Early treatment of the Class III malocclusion involving mandibular excess is generally avoided. Attempts to restrict mandibular growth using chin-cup retraction devices produce less than the desired results. Recent studies suggest that malocclusions corrected in this way have limited stability as well as latent mandibular growth, and a return to the pretreatment condition is common.[11] There is also concern about the long-term effect on temporomandibular joint health.[12] Condylar displacement has been implicated in the development of temporomandibular joint internal derangement, although this finding is controversial. Forces of sufficient magnitude to inhibit condylar growth may cause the capsular ligaments to stretch, increasing the risk of temporomandibular dysfunction. The treatment of choice for mandibular prognathism is comprehensive orthodontics and orthognathic surgery when growth is complete.

Early orthopedic treatment using protraction headgear should be considered in patients presenting with a retrusive maxilla and inadequate or normal incisor display and lower face height. Cases presenting with excessive incisor display, anterior open bite or excessive lower face height should not be treated with protraction headgear.[13]

Orthopedic maxillary advancement is initiated by the placement of a fixed rapid palatal expansion appliance (Hyrax) for at least seven to 10 days prior to starting protraction force. Many patients presenting with Class III skeletal malocclusions also have bilateral posterior cross-bites. Maxillary expansion, as well as addressing the transverse discrepancy, has the added benefit of initiating cellular response in the sutures of the midface, allowing a more positive reaction to protraction force. The Hyrax expansion appliance should be activated by turning the expansion screw one-quarter turn daily, resulting in a 1.0 mm palatal width increase every four days. The length of pre-protraction expansion will depend on the severity of the posterior discrepancy.

Hooks are built into the Hyrax expansion appliance to allow for the attachment of protraction headgear (**Fig. 5**). The headgear pads are adjusted to comfortably contact the forehead and chin, and the elastics should be directed with a slight downward force (**Fig. 6**). They should provide 300-500 grams of force per side and should be replaced daily. Protraction headgear has been shown to be most effective in the early mixed dentition, and results in considerably less skeletal change after nine years of age.[14] It is also important to initiate treatment early so that adequate root structure is present on the deciduous first molars to anchor the expansion appliance.

Depending on the severity of the skeletal discrepancy and the patient's age, four to eight months are usually required to correct the problem if the appliance is worn 24 hours per day.[15] The same result can be achieved if the appliance is worn 14 hours per day over a period of 12 to 16 months. During treatment, the patient should be evaluated at regular four- to six-week intervals to monitor progress. The overjet should be over-corrected and the headgear continued at nights for four to six months depending on the patient's tendency to relapse. Full-banded orthodontic therapy will be required when the permanent teeth erupt.

Conclusions

The diagnostic criteria for the three types of anterior cross-bites are outlined in **Table I**. Most anterior cross-bites are best treated in the early mixed dentition stage of dental development. Based on accurate diagnosis, simple and functional anterior cross-bites are easily treated within the general dental office. Although many acceptable appliance designs are available, those presented in this paper provide consistent results. Proper management of these problems is very rewarding to both the patient and the dental practitioner. Skeletal anterior cross-bites require early diagnosis and in most cases referral to an orthodontic specialist.

Dr. Major *is associate professor and chairman of the division of orthodontics, at the University of Alberta*

Dr. Glover *is professor and chairman of the department of stomatology, division of orthodontics, at the University of Alberta.*

Reprint requests to **Dr. Major**, *Division of Orthodontics, Faculty of Dentistry, University of Alberta, Edmonton, Alberta T6G 2N8.*

References

1. Heikinheimo, K., Salmi, K. and Myllarniemi, S. Long term evaluation of orthodontic diagnosis made at ages of 7 and 10 years. *Eur J Orthod* 9:151-159, 1987.
2. Hannuksela, A. and Vaananen, A. Predisposing factors for malocclusion in 7-year-old children with special reference to atopic diseases. *Am J Orthodont Dentofac Orthop* 92:299-303, 1987.
3. Hannuksela, A., Laurin, A., Lehmus, V. et al. Treatment of cross-bite in the early mixed dentition. *Proc Finn Dent Soc* 84:175-182, 1988.
4. Valentine, F. and Howitt, J.W. Implications of early anterior cross-bite correction. *J Dent Child* 37:76-83, 1970.
5. Van der Linden, F.P.G. *Problems and procedures in Dentofacial Orthopedics*. London, Quintessence Publishing Co., 1990.
6. Chung, C.K. and Kerr, W.S.J. Intraceptive orthodontics: application and outcome in a demand population. *Br Dent J* 162:73-76, 1987.
7. Lee, B.D. Correction of cross-bite. *Dent Clinic North Am* 22:647-668, 1978.
8. Glover, K.G. *Undergraduate Orthodontic Diagnostic and Procedures Manual*. Division of Orthodontics, University of Alberta, 1985.
9. Brehm, W. and Carapezza, L.J. Space age pedodontics: The use of the utility archwire appliance. *J Pedodont* 11:201-229, 1987.
10. Sue, G., Chaconas, S.J., Turley, P.K. et al. Indicators of skeletal Class III growth. *J Dent Res* 66:348, 1987.
11. Ritucci, R. and Nanda, R. The effect of chin cup therapy on growth and development of the cranial base and midface. *Am J Orthodont Dentofac Orthop* 90:475-484, 1986.
12. Wyatt, W.E. Preventing adverse effects on the temporomandibular joint through orthodontic treatment. *Am J Orthodont Dentofac Orthop* 91:493-499, 1987.
13. Turley, P.K. Orthopedic correction of Class III malocclusion with palatal expansion and custom protraction headgear. *J Clin Orthop* 22:314-325, 1988.
14. Sakamoto, T. Effective timing for the application of orthopedic force in the skeletal Class III malocclusion. *Am J Orthodont* 80:411-416, 1981.
15. Cozzani, G. Extraoral traction and Class III treatment. *Am J Orthodont* 80:638-650, 1981.

Dental anxiety: differentiation, identification and behavioral management

Arthur A. Weiner, DMD, FACD, FAGD
Boston, Mass.

ABSTRACT

Dental anxiety has always been and still is a major impediment to regular dental care for a significant proportion of the general public. In years past, dental professionals could afford, by and large, to ignore this problem. Practices could flourish based on their technical virtuosity, and fearful or anxious patients might be considered a burden rather than a concern.

Today, however, the laws of supply and demand are causing dentists to pay increased attention to aspects of the profession that extend beyond the science of clinical technique. A successful practice now depends on interpersonal as well as technical skills, particularly the ability to manage dental anxiety. Despite this, most dentists admit to a surprising lack of confidence when it comes to understanding the nature of anxiety and the modern methods advocated for its everyday management, which generally rely on behavioral modes of intervention. This paper is designed to familiarize practitioners with some of the basic elements of dental fear and anxiety, and their day to day management.

SOMMAIRE

Pour bon nombre de gens, la peur du dentiste constitue toujours un obstacle majeur et les empêche de lui rendre régulièrement visite. Naguère, les professionnels de la santé dentaire pouvaient se permettre d'ignorer ce problème. Grâce à leurs exploits techniques, ils avaient des clients, et les patients craintifs ou angoissés importunaient plus qu'ils n'attiraient la sympathie.

Aujourd'hui, cependant, le jeu de l'offre et de la demande oblige les dentistes à s'intéresser davantage à des aspects de la profession dépassant la simple technologie. Pour être prospère, un dentiste doit avoir autant d'aptitudes pour les relations humaines que de compétences techniques et, plus particulièrement, il doit savoir comment gérer les patients qui ont peur de lui. En effet, la plupart des dentistes avouent un étonnant manque de confiance face à ce problème; ils ne comprennent pas cette peur et ne connaissent pas les méthodes maintenant préconisées pour la gérer convenablement avec de bons comportements d'intervention. Dans cet article, on explique aux praticiens les principes fondamentaux régissant la peur du dentiste ainsi que la façon de la gérer au cabinet.

Introduction

Differentiation

Patients avoid seeking dental treatment for a variety of reasons, but fear may be at the top of the list. Until recently, most researchers believed that the fear of dental treatment could be related to a simple continuum of negative experiences, which could occur in mild, moderate or severe forms. Even today, many of the studies attempting to trace and measure the etiology of dental fear[1-4] reflect this view. Dental fear and anxiety are considered to occur for a variety of reasons, such as prior traumatic experience, environmental concerns, low threshold to pain, attitude of the practitioner or patient, and certain cultural considerations.[5]

In contrast to these widely held theories, new medical and dental studies[6,7] suggest that anxiety/panic disorders do not stem from a single continuum of traumatically-conditioned experiences. Instead, these studies suggest that anxiety and its symptoms, for the purposes of identification and management, should be classified into two separate clinical entities.

The first entity, or group, involves the situation-related anxiety symptoms seen when an individual is suitably stressed from prior experiences or falsely learned behavioral habits. In general, the etiology of these symptoms, which are biologically manifested as moist palms, fluttery stomach, fine hand tremors, and rapid heartbeat, is found in the external environment (psychologic-anticipatory) when the average individual becomes stressed.

The second entity or endogenous subgroup is characterized by a more severe cluster of symptoms, such as light-headedness, difficulty in breathing, hyperventilation, fear of losing control, and varying continuous degrees of nervousness. These symptoms seem to be related to some underlying (endogenous) core metabolic biochemical disturbance in the central nervous system, which appears to be associated with a genetic vulnerability. Endogenous anxiety symptoms occur spontaneously, without provocation and at any time. The symptoms of endogenous anxiety (medical disorder) mimic not only the symptoms of dental anxiety, but also those of a host of other medical conditions. Due to this fact, it is of the utmost importance that a proper differentiation is made, otherwise a practitioner may unwittingly ignore a medical disorder in an attempt to complete needed dental care.

Differentiation is simple. Exogenous dental anxiety symptoms (dental, specific) only occur in the presence or anticipated presence of the feared stimulus, while endogenous generalized anxiety (medical disease process) occurs spontaneously at any time and without any apparent stimulus. By using this potent clinical discriminator, the dental practitioner can adequately determine the best mode of treatment for a particular patient. This will reduce the stress felt by that individual, and thus enhance the conditions for the completion of treatment.

Identification

The identification of anxiety can actually be a rather difficult process. This may explain why many dental practitio-

TRUE HYDROPHILIC PROPERTIES
UNSURPASSED ACCURACY

The ESPE IMPREGUM® F Advantage...

ESPE IMPREGUM's unsurpassed accuracy is documented in scores of independent reports*, covering over 15 years of clinical use.

Since IMPREGUM F is a polyether - it is truly hydrophilic and therefore, likes water. This allows you to routinely capture accurate impressions in the moist oral environment without dehydrating the teeth or complicating your technique.

This universal medium viscosity material flows freely under pressure yet won't slump. Impregum F will simplify your impression technique for edentulous arches, border molding, crown and bridge and implant procedures.

Vinyl polysiloxane materials - which claim to be hydrophilic - only exhibit these properties when set - not during impression making.

ESPE IMPREGUM F is hydrophilic before, during and after impression making. Most importantly, your impressions are accurate, can be safely disinfected and shipped to the lab without distorting. Try IMPREGUM F - your satisfaction is guaranteed by ESPE-Premier.

* Full bibliography available upon request

LIMITED TRIAL OFFER!

Only $5.00

To receive your trial package of Impregum F plus rebates redeemable on future purchases through your authorized dealer, send this coupon with a $5.00 cheque (includes postage and handling) to ESPE-Premier (Canada), Inc.

Dr. _____

Address _____

_____

City _____

Province _____

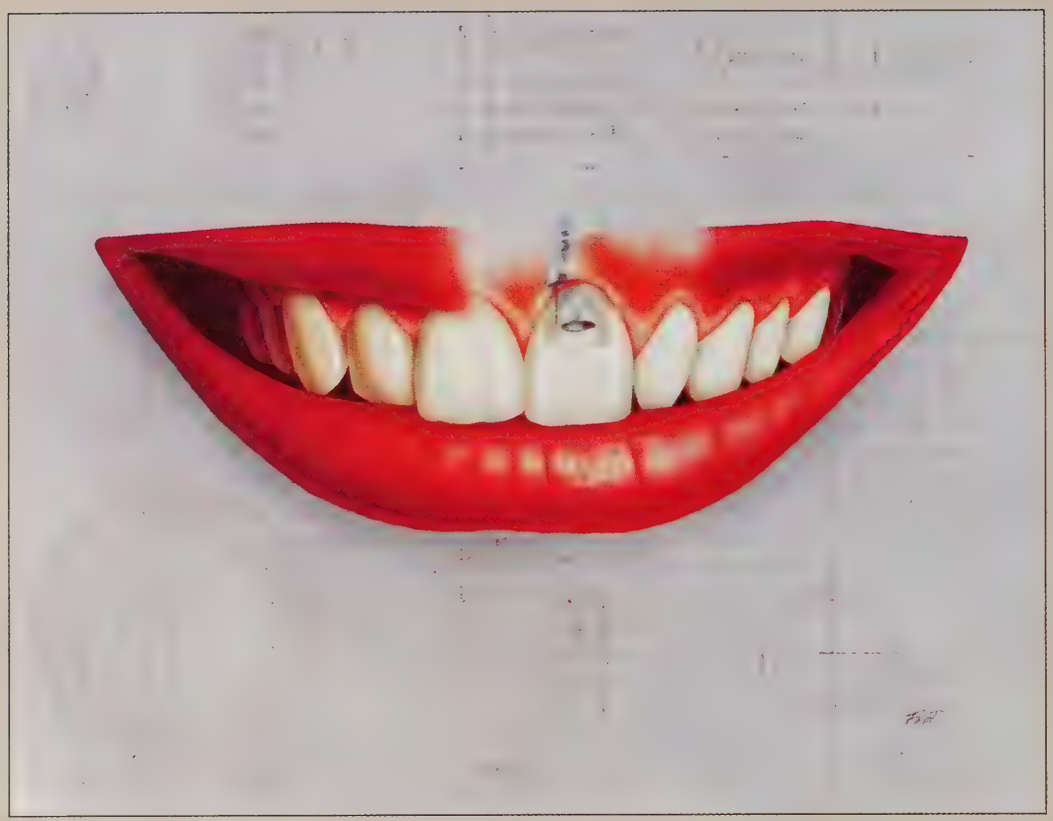
Postal Code _____

One offer per dentist. Only original coupons accepted. Limited quantities. ESPE-Premier reserves the right to withdraw this offer without prior notice. Offer expires 12/31/92.

ESPE-Premier (Canada) Inc. • 480 Hood Road, Unit #5 • Markham, Ontario L3R 9Z3 • 1-800-465-8455

ESPE-premier CANADA

Brånemark System®



The Optimal Solution for a Missing Incisor

Now that BRÅNEMARK SYSTEM® treatment offers a natural choice, why would anyone want to irreversibly prepare intact teeth anymore? CERAONE™ single tooth restorations take over when nature has no more to give.

Nobelpharma
Nobel Industries

Nobelpharma Canada Inc., 284 Consumers Road
Willowdale, Ontario M2J 1P8, Canada
Telephone: (416) 490-9909, Telefax: (416) 490-9916, Toll free: (800) 263-4017.

ners, while they are aware of dental anxiety and its potential impact on their practices, readily admit to a surprising lack of confidence about their ability to identify the condition and undertake its subsequent management. In fact, the identification of dental anxiety requires multiple methods, which can be grouped into three major categories:

1. Observation and interaction;
2. Collection of information;
3. Environmental analysis.

Observation and interaction are techniques for recognizing dental anxiety, especially when it affects patients who are reluctant to admit explicitly that they feel anxious or fearful. This process involves the careful observation, by both the practitioner and office personnel, of the patient's various verbal and non-verbal forms of expression: the behavior of the individual in the reception area – particularly with regards to position in the reception chair, the degree of talkativeness, pacing, rubbing of hands and other biological signs of anxiety, and facial expressions. On its own, a particular sign may mean nothing, but taken together with other signs, it may suggest the presence of anxiety.

Collection of Information

The collection of information from patients is undoubtedly the most efficient and reliable means of identifying dental anxiety. This process should include questions about past experiences, family history, attitudes toward dentistry, past and present levels of anxiety and present expectations.

Several investigators have developed a variety of effective questionnaires, which, when properly used, can be of tremendous help to the dental practitioner.[7,9,10] Questionnaires allow both the patient and practitioner to monitor treatment progress, and should be used during all phases of treatment including the anticipatory, present and posttreatment periods (**Table I**). They can be administered to the patient in the dental office prior to treatment, or mailed to the patient in advance of his or her appointment. The dental practitioner may then follow up on the questionnaire with a personal interview in the treatment area.

Environmental Analysis

The third modality for identifying dental anxiety is environmental analysis. This method focuses on the sociological expression of dental anxiety, and analyzes how the environment may contribute to an individual's anxiety. It should consider the features found within the reception area, including the actual composition of this space, and take into account the type of posters and literature being displayed. Many posters depict repulsive characters and other grotesque creatures crawling over the dentition. These images would frighten anyone.

Sound can also be a factor. Certain types of music, such as heavy metal, have been shown to cause arousal, which means anxiety. Colors such as red, dark green and blue can also contribute to arousal in some individuals. Finally, the attitude and feelings of the practitioner can also be responsible for eliciting patient anxiety. For example, a younger, less experienced dentist may harbor some anxiety about his or her skills, which may be manifested in that individual's actions and behavior toward the patient. Conversely, a more experienced practitioner may be so confident about his or her skills that the patient's confidence is taken for granted. This type of feeling may lead the practitioner to ignore the feelings and expectations of the patient and, unwittingly, contribute to his or her anxiety. In this category, one must include the dental practitioner who finds treating the anxious patient a burden rather than a concern, and who pays little attention to the psychological needs of the patient.

Each method of identifying anxiety:

Table I

Patient Anxiety Inventory Questionnaires

Examples:

1. Receptionist Patient Observation Assessment

0. none at all
1. a little
2. moderately
3. severely

Fidgeting with hands or objects ☐
Sitting on edge of chair or leaning forward ☐
Pacing ☐
Frequent changes in sitting position ☐
Repetitious hand or leg movements ☐
Frequent visits to the rest room ☐
Arrive on time Yes ☐ No ☐ How late _____ Never on time ☐

2. Practitioner's verbal inquiry of past and present anxiety

How long has it been since your last visit? _____
What kind of treatment did you receive? _____
How did it feel? _____
Do you have any current concerns about receiving treatment? _____
What did your previous dentist do that caused you to be anxious? ___
What could I do as a dentist to make you less anxious? _____
What would I do as a dentist that would make you anxious? _____
Are you presently anxious and if so why? _____

3. Patient refractory (post visit) assessment questionnaire (take home)

The dentist said things in a way to fool me. Yes ☐ No ☐
The dentist made me feel comfortable about asking questions. Yes ☐ No ☐
I feel the dentist put me down. Yes ☐ No ☐
The dentist explained everything to me in an understanding manner. Yes ☐ No ☐
The dentist made fun of my fears and lack of care. Yes ☐ No ☐
The dentist waited until the novocaine took effect. Yes ☐ No ☐
The dentist explained to me how and where I should feel numb. Yes ☐ No ☐
I was satisfied with my treatment. Yes ☐ No ☐
I would refer my family and friends to this office. Yes ☐ No ☐
Was the office staff courteous. Yes ☐ No ☐

observation and interaction; collection of information; and environmental analysis; can be implemented during the various phases of treatment. During the anticipatory phase, the patient might be asked to fill out questionnaires that collect information about past and present experiences. During the current phase, the observations made when the patient is in the treatment area (of both verbal and non-verbal expressions) can be combined with the information gleaned from personal interviews with the patient about his or her responses to the questionnaires. Patients must be permitted to express their anxiety, to communicate their desires and doubts, and to feel that they are a part of the treatment planning. Finally, during the refractory or posttreatment phase, patients might be asked to complete questionnaires concerning their experience and satisfaction, and should be given information with regard to what may or may not occur as a result of the treatment just received. Many practitioners fail to instruct patients regarding the duration of anesthesia, if pain will occur, and on what to do before calling the office.

Management of Dental Anxiety

The prevention and elimination of dental anxiety demands much more from the practitioner than simply making patients aware of his or her concern for their feelings. Once a patient's anxiety and the cause of it have been identified, the dental practitioner can make use of a number of behavioral management techniques.

These techniques can be divided into five distinct categories.[11]

1. Minimizing cues
2. Building positive associations
3. Learning by attribution and appraisal
4. Distraction
5. Promoting a condition of relaxation

Minimizing Cues: This technique attempts to break the learned association between fear and dental treatment. It involves removing from sight, as much as possible, those stimuli that most patients associate with the pain and fear of dental treatment. For example, the treatment area can be structured in a way that keeps as many instruments as possible out of the patient's line of sight. Bracket tables and counter tops should be kept as instrument free as possible, with instruments being removed or brought out only when needed. In the reception area, a breeding ground for anxiety, the length of waiting time, the noise of the drill from adjacent operatories, and the availability of certain types of literature should all be kept at a minimum. The practitioner would be well served by periodically sitting in the reception area, as an observer, to identify anxiety-causing objects. Their presence could then be minimized.

Building Positive Associations: This second group of behavioral techniques, rather than minimizing the cues associated with dental anxiety, attempts to help patients unlearn old associations. One method is to use positive reinforcement for non-anxious behavior by rewarding such behavior with praise and support. Here, the practitioner is attempting to associate the feeling of praise with dental care. Positive reinforcement is easy to introduce during relatively simple procedures, such as examinations and prophylaxis.

Another form of unlearning is the so-called "dry run." This takes the patient through a particular procedure, either by verbal explanation or video tape. It helps to familiarize the patient with the procedure and may serve to unlearn any negative feelings the individual may harbor about it. Modelling is another excellent method and works particularly well with children. It allows the patient to watch another individual undergoing the same procedure that he or she will undergo. Here, however, one must be sure that the individual in the dental chair is a non-anxious patient.

Learning by Attribution and Appraisal: This technique is designed to provide information to the patient that encourages the identification of non-anxiety-provoking attributes as well as more positive appraisals of the dental experience. The practitioner tells the patient not only the kind of procedure to be performed, but also what sensations he or she may expect to feel and the results that will hopefully be obtained as a result of the procedure. While this information is being provided to the patient, the practitioner also offers alternative attributions. For example, when the anesthetic is injected, the patient is informed that adrenaline usually causes some fine tremors as it is a mild stimulant. However, this is normal and almost everybody experiences these sensations. Here, the practitioner is providing information, but at the same time informs the patient that he or she is not the only one who experiences tremors or the shakes. The point is to help the patient lessen his or her anxiety by suggesting the normalcy of the procedure and to anticipate his or her reactions to that procedure.

Distraction: This group of techniques attempts to reduce dental anxiety by distracting the patient during treatment. A variety of methods may be used, including talking, music, video games or even television. Practitioners need to be careful in their choice of method, and to make sure that the instrument of distraction does not backfire and become a cue for arousal and anxiety. For example, certain types of music have been shown to cause states of arousal that can lead to anxiety, as well as certain types of TV programs, especially those that contain too much serious drama.

Promoting Relaxation: This group includes a variety of techniques designed to promote a state of relaxation, a condition that is incompatible with anxiety. Appropriate methods include systematic desensitization, whereby an individual is gradually desensitized to a specific stimulus or stimuli. It requires the patient to engage in a relaxation response to a strong degree, so that the relaxation inhibits the anxiety response.[12,13] To accomplish this, the patient must be taught proper breathing and how to tense and relax various muscle groups. Once the individual masters these two techniques, a series of imagined anxiety-arousing scenes involving the impending dental procedure is established. The scenes are ordered along a dimension of increasing degrees of anxiety from least to most anxious, and form the basis of the hierarchy. Other relaxation techniques that can be used, but require more extensive patient instruction, are biofeedback and imagery flooding. In biofeedback, the patient learns to relax muscles and control breathing through machine monitoring. Relaxation within the dental setting is most beneficial to both patient and practitioner, because when the practitioner is relaxed, the patient will also most likely be relaxed.

Conclusion

Fear and anxiety have been a part of dental practice, and their management a dilemma to many practitioners, for a long time. One of the principal reasons for this situation is a lack of understanding of the psychology of fear and anxiety, and the failure of the dental

practitioner to properly identify these conditions. All too often, practitioners, out of frustration, will regard the anxious patient as a burden rather than a concern. Being able to understand the psychology of anxiety, as well as knowing how to differentiate between the symptoms caused by certain medical disorders and those caused by classically-learned behavior patterns is essential. Successful patient management depends on interpersonal as well as technical skills. Today's practitioners can no longer be content with treating the physical needs of patients, while ignoring the emotional ones. The two must go hand in hand. ▪

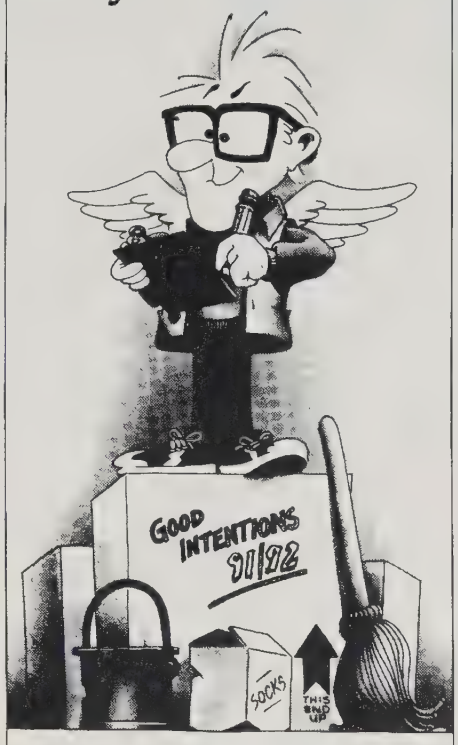
Dr. Weiner *is associate clinical professor and director of the behavioral science course at Tufts School of Dental Medicine, 1 Kneeland Avenue, Boston, Massachusetts 02111. He is president and editor of the American Analgesia Society.*

Reprint requests to **Dr. Weiner**.

References

1. Shoben, J.J. and Borland, L. An empirical study of dental fear. *J Clin Psychol* 10:171-174, 1974.
2. Kleinknecht, R.A., Klepar, R.K. and Alexander, L.D. Origins and characteristics of fear of dentistry. *JADA* 86:842-848, 1973.
3. Gale, E.N. Fears of the dental situation. *J Dent Res* 51:964-966, 1972.
4. Corah, N.L. Development of a dental anxiety scale. *J Dent Res* 48:496, 1969.
5. Forgione, A.G. and Clark, R.E. Comments on an empirical study of the cause of dental fear. *J Dent Res* 53:496, 1974.
6. Sheehan, D.V. Panic and phobic disorders: current concepts in psychiatry. *New Eng J Med* 307:156-158, 1983.
7. Weiner, A.A. and Sheehan, D.V. Differentiating panic disorders from dental anxiety. *J Acad Gen Dent* 32:242-245, 1984.
8. Weiner, A.A. Dental anxiety: An efficient means of identification. *J Am Anal Soc* 22:14-18, 1988.
9. Weiner, A.A., Sheehan, D.V. and Jones, K.J. Dental anxiety: The development of a measurement model. *ACTA Scand Phych* 73:559-565, 1986.
10. Weinstein, P., Smith, T. and Packer, N. Methods for evaluating patient anxiety and the inter-personal effectiveness of dental personnel: An exploratory study. *J Dent Res* 50:1324-1326, 1971.
11. Yeates, K.O. Dental anxiety: A psychologist's perspective. *J Am Anal Soc* 21:9-14, 1987.
12. Weiner, A.A., Moore, P.A. and Sheehan, D.V. Current behavioral modes of reducing dental anxiety. *Quintess Intern* 9:981-985, 1982.
13. Wolpe, J. *Psychotherapy by Reciprocal Inhibition*. Stanford, Stanford University Press, 1958.

I'm doing some housecleaning in the back of your mind...



Hi! It's me, your conscience. Between old phone numbers, song lyrics, and lame excuses, there's a lot of clean up to do!

But there are also great things back here. Look! A desire to help out a friend, a wish to give time to a worthy cause, the intention to help your community and your neighbours—and more!

Let's move this stuff up to the *front* of your mind and use it to change the world. Helping causes we care about will be a breeze without all the clutter, so let's get to it!

Oh, and by the way, that little widget you can't find is in the back of your top dresser drawer...

IMAGINE

Imagine is a national program to encourage giving and volunteering.

TYLENOL*
acetaminophen

A LOGICAL FIRST CHOICE

ACTIONS:
Acetaminophen is an analgesic and antipyretic

INDICATIONS:
TYLENOL* acetaminophen is indicated for the relief of pain and fever. Also as an analgesic/antipyretic in the symptomatic treatment of colds.

CONTRAINDICATION:
Hypersensitivity to acetaminophen.

ADVERSE EFFECTS:
In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:
Resuscitation and supportive care must proceed as for any other potentially serious overdose. In acute overdose, serum levels of acetaminophen are meaningful in predicting those patients likely to develop serious hepatic toxicity. They must be drawn between 4 and 24 hours post overdose and the values plotted on the Matthew-Rumack Nomogram. N-acetylcysteine (N.A.C.) is a highly effective antidote for acetaminophen poisoning. Do not delay administration of N.A.C. either by parental or oral routes if the ingested dose is likely to be toxic (> 150 mg/kg ingested) or if serum levels are in the toxic range on the Nomogram. N.A.C. must be administered prior to the 24th hour post overdose to be protective. Further details on therapy of acetaminophen overdose are available by calling your regional Poison Control Centre.

DOSAGE:
Adults: 650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours.

SUPPLIED:
TYLENOL* Caplets 325 mg: Each white caplet, scored on one side and engraved "TYLENOL" other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50† and 100 caplets.

TYLENOL* Tablets 325 mg: Each round, white tablet, scored on one side and engraved "TYLENOL" other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50†, 100 and 500 tablets.

TYLENOL* Caplets 500 mg: Each white caplet engraved "TYLENOL" on one side and "500" other side, contains 500 mg acetaminophen. Available in bottles of 24†, 50 and 100† caplets.

TYLENOL* Tablets 500 mg: Each round, white tablet, engraved "TYLENOL" one side, and "500" other side contains 500 mg acetaminophen. Available in bottles of 30†, 50 and 100 tablets.

TYLENOL* Gelcaps 500 mg: Each solid capsule-shaped tablet, coated with red gelatin on one end and yellow on the other, printed "TYLENOL/500" on each gelatin coated end, contains: 500 mg acetaminophen. Available in bottles of 24† and 50 gelcaps.

†Package is child-resistant.

References:
1. Yang Mao, Canadian pediatric asthma: morbidity, mortality and hospitalization data. MES Medical Education Services (Canada) Inc.
2. Georgetown Symposium on Analgesics: Arch. Intern. Med. 141: 273-406, 1981.
3. Bradley et al: Ibuprofen vs. Acetaminophen for Knee Osteoarthritis. The New England Journal of Medicine, Vol. 325 No.2, 1991.

McNEIL
McNEIL CONSUMER PRODUCTS COMPANY
GUELPH, CANADA N1K 1A5
*Trademark
PAAB CCPP
ATA-EJ-10/91

CDA Access Ads

CDA ACCESS ADS offer guaranteed* access to Canada's largest audience of dentists. To place your ad, call OLA MURPHY toll-free across the country at **(800) 661-5004.** In the Toronto calling area, please dial **(416) 278-6700.**

**If you are not satisfied with the results of your ACCESS AD, we will offer you your money back in the form of a credit for future use. Please call for more information.*

Replying to a CDA Access Box Number?
Simply write to:
CDA Access Box ___,
1382 Hurontario St.,
Mississauga, Ont. L5G 3H4.
Or you may fax your reply to (416) 278-4850, noting the appropriate box number.

Offices & Practices

BRITISH COLUMBIA - Southern: General family practice with a preventative emphasis. Independently evaluated and appraised as being unsurpassed in quality. Located in brand new office building. Dental office occupies 2,000 sq. ft. on main floor with a 2,000 sq. ft. basement, yearly gross approximates $600,000. Could easily accommodate two hard-working dentists. Great support staff. Owner returning for postgraduate training. Please reply to CDA ACCESS Box 2526. (10/07)

BRITISH COLUMBIA - Prince George: Situated in downtown area, well established general practice, with good patient base and recall system. Four operatories, lab, pan and X-ray room. Gross $450,000 per year, working only three days per week. Area offers excellent all-round facilities and recreational opportunities. Please call (604) 769-3537, (604) 564-5051 or (604) 564-4945. (04/13)

BRITISH COLUMBIA - West Kootney-Trail: Growing general practice for sale. Four operatories, 1,400 sq. ft., downtown location, grossing $450,000 yearly, 52% overhead, four day week, 10 weeks per year holidays. Building owned by vendor, family wishes to relocate to University of Victoria area. Valued at $250,000. Contact Jacke LaBine, phone (604) 368-6525, fax (604) 364-1099. (03/07)

B.C. - Vancouver Suburbs
Pediatric practice - established Ortho/Pedo practice. Tastefully decorated office with four operatories and central nitrous.
Excellent opportunity for growth.
Medi-Dent Professional Services
Contact: Al Heaps (604) 669-9857.(06/08)

FOR INFORMATION ON B.C. DENTAL PRACTICES FOR SALE CALL
Health Pro Management Ltd.
17335 - 59th Ave,
Surrey, B.C. V3S 1N9
tel (604) 576-2866 fax(604) 576-9180

ALBERTA - Red Deer: "The heart of the parkland." Well established family practice with solid patient base and good recall. Three modernly equipped operatories and panograph. Located in professional building adjacent to regional hospital, excellent lease. Long standing supportive staff. Practitioner planning post-grad studies. Dr. D. Crowe (403) 342-5135 after 6 p.m. (07/10)

ALBERTA - Edmonton: For sale high gross, low overhead practice for two dentists with room for one associate, or owner will stay to introduce an associate for up to two years. Certified surgical suite for G.A.s with referrals from over 50 doctors. Denture therapist on staff. Front end completely computerized. For more information phone (403) 482-6551 or fax (403) 488-7902.(06/07)

ALBERTA - Southern: Rural practice, 70 minutes to Calgary, town of 5,000, dentist retiring, building also available. Very reasonable price and terms. Call Bernie (403) 262-2607 (O), (403) 283-0323 (R)(06/07)

ALBERTA - CALGARY
Active dental practice for sale, three operatories, in professional building in large shopping centre, **REDUCED PRICE**.
Phone (403) 255-6717 or (403) 255-0267. (04/07)

SASKATCHEWAN: Rural practice for sale in Saskatchewan. Well established two operatory general practice with high gross and low overhead. Only dentist in town of 1,800. Large drawing area. Good patient base with superior growth opportunities. Town is about an hours drive from Saskatoon or Regina. Owner returning to school. Please reply to CDA ACCESS Box 2532. (07/08)

ONTARIO - Niagara Peninsula: General practice, professionally appraised, with five operatories in 1,500 sq. ft. Two hygienists and denture therapist help support two full-time dentists. Associateship available first if desired. Call Sandy after 6 p.m. (519) 657-3035. (06/07)

ONTARIO - Georgian Bay: Very busy practice for sale, suitable for one or two dentists. Well established practice in a modern facility, only two hours from Toronto. Averaging 35 new patients per month with a high gross and low overhead. Please reply to CDA ACCESS Box 2544. (06/08)

FOR SALE
Busy Oral and Maxillofacial Surgery practice in **Eastern Ontario** city. Full scope of practice. Major anesthesia component to office practice. Small satellite office. Privileges in two tertiary teaching hospitals. For complete information please reply to **CDA ACCESS Box 2539**. (04/07)

BEST OF BOTH WORLDS.
Live in cottage country, but only 1 1/4 hours from Toronto. This busy low overhead, extremely high grossing general practice has a hygienist, is computerized and hospital privileges are available. Please reply to **CDA ACCESS Box 2541.** (05/07)

MAPLE - ONTARIO
20 minutes north of Toronto, three-year-old dental practice for sale. Beautifully located in a professional building in the centre of a wealthy growing community. Two ops. fully equipped and third wired. Sitting area with marble floors and t.v., low overhead, good referrals and excellent opportunity. Call Pina mornings (416) 787-5557, evenings until 10:00 & weekends (416) 737-9332. (07/09)

ONTARIO - CALEDON
Practice For Sale
Newly renovated, 650 sq. ft., 2 operatories, dental office in plaza. **Very reasonably priced**, ideal for recent grad. Call Dr. Osuch (416) 270-8652 (Mon-Fri., 9-5). (07/10)

NEW BRUNSWICK: Well established family practice for sale in the Moncton area. Three operatories, lab, staff room, dark room, panoramic X-ray and private office, 1,500 sq. ft. (doctor owned). Excellent patient base and recall practice. Please write: P.O. Box 27020, Dieppe, New Brunswick E1A 4X0. (06/07)

NOVA SCOTIA - Annapolis Valley: Practice for sale in Nova Scotia Annapolis Valley. Very busy family practice, 1,200 sq. ft. office in a medical dental professional centre. Ultra modern dental set-up, good gross, priced to sell. For more information call (902) 245-5666. (04/13)

URGENT SALE
Orthodontic practice in Nova Scotia. Owner recently deceased. Qualified orthodontic associate required immediately on interim basis/generous remuneration available. Very busy, high gross, straight wire practice. Many new starts waiting. Call (902) 835-0265. (07/07)

NEWFOUNDLAND: General family practice for sale. Hospital setting, serving 10,000. Easily supports two dentists, with a potential satellite clinic. Two state-of-the-art operatories, and a third with X-ray unit. Excellent lease arrangements, owner will assist in transition. Please reply to CDA ACCESS Box 2535. (02/08)

NWT - Yellowknife: Practice for sale/or lease to purchase/or lease. Reason for sale death of principal. High gross, three dentists, downtown practice, excellent opportunity. An associate is also required immediately.Call (403) 873-8259 day or evening. (04/07)

US FORTUNE 500 CO.
Expanding to Pacific Rim Countries. Extraordinary unlimited income featuring time freedom and predictable 3-5 year retirement. Often a viable supplement to your existing career. Call Viny Dolce at (407) 969-1001 (11/13)

Positions Available/Sought

ASSOCIATE WANTED
Dr. Barry Goldberg, Lillooet , B.C. requires a full time associate for a busy family practice. Contact: Ann (604) 256-4616 or evenings (604) 256-7162. (06/08)

BRITISH COLUMBIA
Associate Wanted
For oral and maxillofacial group practice with four offices in the greater Vancouver area. This is an excellent opportunity for an ambitious, energetic and committed individual who is eager to become part of an established growing team of oral and maxillofacial surgeons. Write with full details to **CDA ACCESS Box 2536.** (07/07)

BRITISH COLUMBIA - Vancouver Island: Associate required to join solo practitioner in a growing, family oriented practice on southern Vancouver Island. Practice is situated in medical/dental building with room to expand. Modern, pleasant surroundings with stable staff supporting full range of treatment services. Emphasis on quality, caring dentistry. Situation suited to younger practitioner wishing to build from part time to full time and interested in eventual long term arrangement. Please write with full details to CDA ACCESS Box 2543. (06/07)

BRITISH COLUMBIA - Pender Island: Well established island practice within larger community medical facility requires associate to practice two days per week. Daily commute from Vancouver Island is conveniently available via ferry. Ideal for semi-retired dentist or dentist raising children. Call (604) 732-4314. (07/09)

EDMONTON - ALBERTA
D.D.S. with extensive background in removable prosthetics seeks part time or full time associateship, with a general practice or clinic in Edmonton or vicinity starting July 1992. Call **(403) 435-1872.**(06/07)

LOCUM LOCATORS
HAS REPLACEMENT DENTISTS
OWNER DENTIST
Try it for 2, 3, 4, weeks
One Time Only
Registration Fee $100
Flat Fee $250 for each party upon successful placement.
Regardless of duration.
CALL COLLECT
(403) 791-7799. (07/07)

ALBERTA - Edmonton: Periodontist with well established progressive busy periodontal practice is seeking another Periodontist to join him on a cost sharing or associate basis. Excellent opportunity for capable Periodontist qualified to practice in Alberta. Contact Yvette (403) 436-0108. (01/07)

Oral Maxillofacial Surgeon
with fellowship to The Royal College and experience in trauma and orthognathic surgery wishes an associateship with an existing O.M.F.S. practice in Ontario or Prairie provinces. Please reply with telephone # to **CDA ACCESS Box 2546.** (07/09)

ONTARIO - Ottawa: Ottawa south dental office requires another dentist to rent space, share expenses. Call (613) 738-1763. (07/07)

YOUNG TEAM
in mid sized lab in St. John's , Nfld.
(Swiss management) is looking for a C & B technician (Gold) with experience in Implants & attachments. Must have 3-5 yr. experience. Call Mr. Martin Verhoeks (709) 726-7686. (07/07)

WORK OPPORTUNITY
MINISTRY OF PUBLIC HEALTH
STATE OF KUWAIT

The Dental Department of the Ministry of Health, Kuwait, invites applications for the following positions:

A. General Dentists
B. Specialists in all dental fields
C. University staff on sabbatical will also be considered

General Dentists must have 8-10 years experience. Specialists must have a minimum of 3 years experience after receiving masters degree with a certificate of specialty training.

Compensation includes: return airfare to place of residence, 30 days paid leave, government holidays, free health care, tax-free salary commensurate with experience.

Send application letter in English - including current curriculum vitae with copies of Degree/Certificates, and recent passport size photograph by air to:

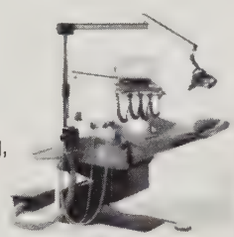
Dr. Ibrahim M. El-Uasin
Assistant Undersecretary
For Dental Sector
Ministry of Public Health
P.O. Box 525
Dasman 15456
State of KUWAIT

Equipment Sales, Service

EQUIPMENT FOR SALE
Cox Rapid Heat Transfer Sterilizer and one extra drawer, **asking $1750.** Phase Contrast Microscope with High Resolution internal camera and nineteen inch monitor complete with all equipment required. **Asking $3000.**
Call (613) 332-1155 for more information on both these items, **ask for Merne.** (07/07)

ALBERTA: For sale spaceline for D. Dental Unit includes: chair, light, tray, X-ray, built-in ultrasonic scalar, two high speed hand pieces (hand pieces included, one fiber-optic), one slow speed hand piece (hand piece included), high volume suction, saliva ejector and cuspidor. Brand new, asking $20,000. Contact: (403) 657-3456 (B), (403) 657-3409 (R). (06/08)

CLINIC II



California Chair with Auto return, arm sling, Unit - 3 Handpiece Automatic, Syringe, View Box, Chair-mounted light, Cuspidor with demand bowl rinse, cup filler. Assistants 2 H.V.E. Saliva Ejector, Syringe Foot control, J. Box with controls for easy hook up. Cushions your choice - 25 colors. Retail - $5,325. Cash Discount - $3,995. Financing available. Top only - $1,250. Cash Discount - $750.

Additional Options: • Faro Light - $425. • Fiad Light - $325. • Slow-Speed Air Motor - $200. • Fiber Optic Light Source - $250. Installed
All prices FOB factory Anaheim.

Dansereau Health Products
559 South Rose St.
Anaheim, CA 92805
(714) 776-5357
(800) 423-5657 (USA & Canada)
FAX (714) 776-4652 (04/08)

The Canadian Dental Association...

Speaking to Dentists,

Speaking for Dentistry

Working for you.

Vacation Rentals

LONDON FLATS

for your London stay. Consider our London flats near the Chelsea Bridge/Battersea Park. Elegantly furnished, centrally located with a 2-hour maid service, Monday through Friday. Flat 18 accommodates five peoeple in three bedrooms with bath/shower and fully equipped kitchen. Flat 16 accommodates three people in two bedrooms, bathroom/shower, lovely lounge and dining room and fully equipped kitchen. Can arrange theatre tickets. Contact evenings for brochure: Mr. Thomas Moore, Telephone: (801) 393-9120, Fax: (801) 393-3024; or P.O. Box 12086, Ogden, Utah 84412 USA. (10/10)

Miscellaneous

BURNED OUT?

Over extended, bored, fed up with your current situation? Use this opportunity and your expertise to become financially independent. Get involved as other professionals have in the U.S. and Canada. Call (416) 332-4501 (10/13)

U.S.A. IMMIGRATION LAW

William Newell Siebert,
Attorney at Law.
307 North Michigan Avenue,
Suite 915, Chicago, Illinois 60601
312-329-0646

Practice limited to U.S. Immigration Law Since 1969 (10/12)

Selling a practice?

Leasing an office?

Buying equipment?

Renting your vacation property?

To place your ad, just call

Ola Murphy
toll-free at
(800) 661-5004.

In Toronto, just dial
(416) 278-6700.

Advertisers' Index

Ash Temple ..... IFC
Aurum Ceramic 516
Bisco Dental 533
Butler ..... OBC
L.D. Caulk ..... IBC
CDA Access 560
CDA DIS 530
CDA Membership 526
CDA Merchandise 576, 577
CDAnet 518
CDA RSP 554
CDSPI 524
ESPE Premier Dental 581
Goodman & Carr 536
McNeil 534, 585
Nobelpharma 582
SAAB 552, 553
Warner Lambert 529

IMPLANTOLOGY – THE CHALLENGE

There has been an explosion of activity in the field of dental implantology over the past decade, due to several related factors. The changing demographics of dental treatment (less drill and fill), along with the current "respectability" of implants, have combined to thrust implants to centre stage as a treatment option for the replacement of missing teeth.

Knowledge in this very complex field is expanding at a phenomenal rate. People involved in implantology – be they oral surgeons, periodontists, prosthodontists or general dentists – must be prepared to commit themselves to extensive continuing education.

Dr. Kenneth Hebel

Historically, however, it has been the implant companies themselves, either independently or in concert with a university, which provided education in the placement of their own particular brand of implant. Naturally, the companies tended to make similar claims about high success rates, quality of product, clinical trials and, of course, ease of placement.

As a result of the aggressive campaign for market share still being waged by the implant companies, our understanding of implant dentistry has advanced in a somewhat hostile environment (the fog of war). Indeed, camps have been formed by the supporters of particular systems, and battle lines drawn. Some universities, in spite of the trust placed in them to provide unbiased research and education, have aligned themselves strongly with individual implant manufacturers and, as such, have further confused the issue.

This situation is untenable. The courses offered by implant manufacturers can provide valuable information about a particular implant and the protocol surrounding its use, but by their very nature they are (and always have been) self-limiting.

Unfortunately, many dentists practising implantology today stopped their implant education at the manufacturers-course level, giving them a restricted view of this very large field. Dentists should only use manufacturers courses as a valuable starting point, and build their knowledge and expertise through implant organizations and study clubs, or through organized educational institutes that address the whole scope of implantology. We owe the implant manufacturers and the original researchers a tremendous debt of gratitude, as their contributions to implant dentistry have been enormous. However, we should not depend on the manufacturers to supply the majority of our implant education.

The ability to provide implant-supported rehabilitations is dependent on proper diagnosis. Once a proper diagnosis is made, the type of prosthesis and the number and types of implants required to support it fall into place. Unfortunately, the implant courses available today tend to be far too product intensive at the expense of diagnosis.

We, the dental profession, must start treating implantology as a broad, complex area of restorative and surgical dentistry. We must be more active in providing and pursuing education in implantology, which must be approached with an all encompassing philosophy.

Only now are we starting to truly understand implantology's full scope and complexity. It is an area of dentistry that transcends a manufacturer's protocol or product, one that demands a knowledge of a wide variety of treatment options, both prosthetic and surgical, for various edentulous and partially edentulous situations. The dental profession must assert more leadership in elevating the level of implant practise and education. We must accept the responsibility and the challenge of reaching higher ground in implantology.

Clearly, the manufacturers of implants and the dental profession have similar goals but different agendas. The primary goal of both groups is to raise implantology to ever higher levels of understanding and success, and in so doing provide a truly significant service to patients – one that can improve their quality of life. Out of this common goal, the manufacturers conduct a successful and profitable business, and we, as dentists, elevate the level of our ability to practise dentistry.

The manufacturers' agenda, however, is to sell their products in an increasingly competitive market. Their educational programs exist to familiarize dentists with a particular system of implants, in the hope that dentists will subsequently purchase that system. This agenda is perfectly acceptable, and we can all appreciate the perspective and motivation of the manufacturers. The agenda of the dental profession, however, is, and should be, very different.

We, the dental profession, are directly responsible to our patients. We must not compromise their treatment by restricting our education and understanding to the limited perspective of the manufacturers. If we practise implantology, we must be committed to understanding the vastness of the field and to extensive, ongoing education. As a profession, we must take responsibility for our training and establish an agenda that focuses on the patient. ■

Dr. Kenneth Hebel, B.Sc., DDS, M.Sc.
London, Ontario

It's no secret anymore: Prisma Universal Bond 3 bonds to metal.

This agent has been reclassified as a multi-purpose bonding agent.

After a battery of tests, the results are strong and clear: Prisma Universal Bond 3 is a certified multi-purpose bonding agent.

Now you can get the legendary strength of Prisma Universal Bond 3 for bonding to more materials. So you can use it for more procedures.

For a variety of cases with precious and semiprecious metals, porcelain repairs, the bonding of composite to amalgam, and dentin and enamel adhesion, you can count on Prisma Universal Bond 3 multi-purpose bonding agent for superior strength and greater resistance to microleakage.

Put this bond to work for you.

Now that the secret's out, ask your distributor for the complete dossier on Prisma Universal Bond 3 multi-purpose bonding agent. Or call 1-800-263-1437. (In Toronto, call 635-7662.)

Innovations you can put into practice.

Prisma Universal Bond® 3

MULTI-PURPOSE BONDING AGENT

Caulk Canada

Dentsply Caulk Canada Division Dentsply Canada Ltd.

©1992 Dentsply International Inc. All Rights Reserved.

Butler

"Get it all with just one call."

The world's most complete line of quality dental health products is just a phone call away

Butler has turned home dental care into a science. Now we provide you with virtually everything your patients will ever need for a lifetime of dental well-being ... all from one convenient source.

Not only do we give you the most complete line, but the new Butler Gold Convenient Shipment Plan makes it even easier for you to buy. Just arrange to purchase $400 of Butler products in one year and you'll get the best price on all products regardless of quantity. Call for details.

GOLD PLAN

ADA PROFESSIONALLY RECOGNIZED American Dental Association

Butler

John O. Butler Company
515 Governors Road • Guelph, Ontario N1K 1C7
Phone: Toll-Free 1 800 265-8353
In Ontario and Quebec: 1 800 265-7177 (except AC 418)
Service en Francais: 1 800 265-7203

Butler G·U·M Toothbrushes · Butler Critter Children's Toothbrushes · Special Use Toothbrushes · Proxabrush Interdental System · Floss · Floss Threaders · Protect Fluorides · Protect Prophy Paste & Trays · Protect Dentin Desensitizer · Red Cote Plaque Disclosants · Home-Care Kits · Protect Desensitizing Gel Dentifrice · Teaching Aids · And many other Home-Care Aids

August
Août
1992
Vol. 58
No. 8

JOURNAL

Canadian Dental Association

L'Association Dentaire Canadienne

If undeliverable
to Addressee
RETURN TO SENDER
Return Postage
Guaranteed

Si non livrable
au destinataire
RETOURNER À
L'EXPÉDITEUR
Port Payé

Join us in Calgary!
Soyez des nôtres à Calgary!

- Practice Management
- La gérance du cabinet

LOOKING AT THE DENTSPLY

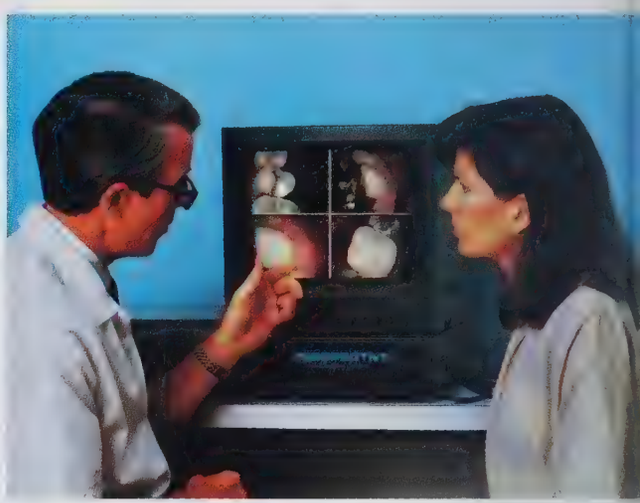
PERSPECTIVE™

Dental Imaging System...You discover SIMPLICITY AND AFFORDABILITY

The Dentsply Perspective™ System represents the latest innovation in Intra-Oral Video Imaging technology.

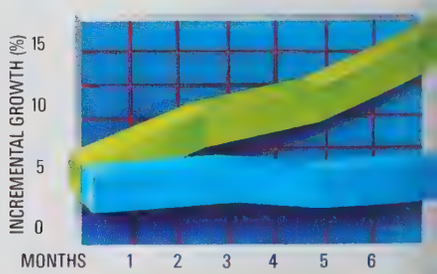
Easy to learn, and operate:

- The advance technology of the Perspective System eliminates the need for complex keyboard sequences. Complete operation can be mastered in under an hour.
- Convenient access to all areas of the oral cavity, is assured by our use of dentistry's smallest colour CCD Intra-Oral Camera. Only the Perspective System offers genuine high resolution and accurate colour imaging under any lighting conditions.
- The Perspective Dental Imaging System is proof that superior technology can be moderately priced.



An investment easy to justify:

- Practitioners using Dentsply Video Imaging Systems have reported incremental gains in patient acceptance of 10% or more as well as patient referrals from their existing patient base.



CDA Convention Special:

See us at booth No.'s 415, 417, 419

Dentsply/Equipment Division

Downsview, Ontario, M3J 2Z4 (416) 635-7070

August 1992

JOURNAL

JOURNAL STAFF

Executive Director
A. Jardine Neilson

Editor
Dr. P. Ralph Crawford

Managing Editor
Terence Davis

Assistant Editor, Art Director
Louise Després Jones

Assistant Editor, Production
Antonia Papadakou

Scientific Editor (English)
Dr. Robert S. Turnbull

Scientific Editor (French)
Dr. Pierre C. Desautels

CONSULTING EDITORS

Anesthesiology
Dr. Earle Young

Dental Materials
Dr. Peter T. Williams

Medicine
Dr. George K.B. Sandor

Forensic Dentistry
Dr. Robert Dorion

Infection Control
Dr. John Hardie

Pharmacology
Dr. David M. Paton

Practice Management
Dr. Bob Brandon

Nutrition
Mrs. Nina Burgess

Canadian Dental Hygienists Association
Ms. Carole Worobey

Canadian Dental Assistants Association
Ms. Diane Pike

SPECIALTY EDITORS

Endodontics
Dr. W.H. (Bill) Christie

Oral Maxillofacial Surgery
Dr. David S. Precious

Oral Pathology
Dr. J.H.P. Main

Orthodontics
Dr. K.E. Glover

Pedodontics
Dr. Victor Legault

Periodontics
Dr. James E. (Jim) Stakiw

Prosthodontics
Dr. Michael MacEntee

Public Health
Dr. Donald Lewis

Radiology
Dr. Colin Price

LIBRARY AUG 18 1992

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa, Ont.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds. In Canada - $48 (+ GST); United States - $53; all other - $58. Subscriptions are for 12 issues, not necessarily conforming with the calendar year. All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the *Journal*. Publication of an advertisement does not necessarily imply that the Canadian Dental Association agrees with or supports the claims therein.

ISSN 0709 8936

PRINTED IN CANADA

Call CDA for information and assistance toll-free at:

1-800-267-6354

CDA FAX Nos: 1-613-523-7736
1-613-523-5891

All matters pertaining to advertising should be directed to:

Keith Health Care Communications
1382 Hurontario Street
Mississauga, Ont. L5G 3H4
ATTN: Trish Sullivan
Advertising Representative,
or, Ola Murphy
CDA Access Representative

Tel: (416) 278-6700
Fax: (416) 278-4850

Member

American Dental Editors' Association
Canadian Circulations Audit Board

CDA MISSION STATEMENT

The Canadian Dental Association is the authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada, — dedicated to meeting member needs, and the promotion and provision of optimal oral health for Canadians.

The Journal of the Canadian Dental Association is published in both official languages except scientific articles which are published in the language in which they are received. Readers may request the Journal in the language of their choice.

CDA EXECUTIVE COUNCIL

President
Dr. L.S. Allen
Winnipeg, Manitoba

President-Elect
Dr. B. Dolansky
Ottawa, Ontario

Vice-President
Dr. R. Wenn
Charlottetown, P.E.I.

Dr. J. Brookfield
Kirkland Lake, Ontario

Dr. B. Dolman
Montréal, Québec

Dr. B. Sigfstead
Edmonton, Alberta

Dr. R. Smith
Duncan, B.C.

Dr. T. Gushue
St. John 's, Nfld.

Dr. B.E. White
Saskatoon, Saskatchewan

CDA STAFF

1815 Alta Vista Drive,
Ottawa, Ontario K1G 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Executive Director
A. Jardine Neilson

Manager, Executive Services
Sandra Déziel

Coordinator, Board and Executive
Suzanne Burton

PROFESSIONAL SERVICES

Director, Education and Accreditation and Professional Services
Brian Henderson

Associate Director, Education and Accreditation
Susan Matheson

Coordinator, Accreditation
Gay MacQuarrie

Coordinator, DAT
Danuta Askew

Coordinator, Purchaser Information Program
Coordinator, CDAnet
Patricia Duminy

ADMINISTRATION

Director of Administration
Joel R. Neal

Business Manager
Shelagh Dunlop

Accountant
Joan Kerwin

Membership Secretary
Lydia Allison

COMMUNICATIONS

Director of Communications
Linda Teteruck

Librarian
Martha Vaughan

Information Officer
Lisa Burke

What's so distinctive about Ash Temple service?

At Ash Temple, we recognize that when you need supplies, or your equipment malfunctions, you can't afford to wait. You need fast, efficient response.

That's why it's good to know you can rely on the people at Ash Temple.

Ash Temple's team of experts is composed of people who combine seasoned experience with the latest knowledge of industry developments.

Our service commitment is a combination of three important elements:

- An outstanding dedication to promptness and efficiency on the part of all our staff from coast-to-coast.
- A distribution infrastructure devoted to providing consistent reliability with high order fill rates unrivalled in Canada.
- An enviable reputation earned over years of service to the Canadian dental profession.

Ash Temple can provide the service you require from within your local community.

Call us. We're there when you need us.

Ash Temple LIMITED

Keeping you a step ahead.

Frank Elborne, Vancouver Branch Mgr. (retired) 50 years with Ash Temple.

F.C. (Cy) Elborne, President With Ash Temple 20 years.

The Ash Temple Companies — Ash Temple Limited, Servident, A-Tech, Microbex Aseptics, Acrylium

ASH TEMPLE SERVICES:

Ash Temple has 14 strategically located, full-service depots — Halifax, Saint John, Quebec, Montreal, Ottawa, Toronto, Hamilton, London, Winnipeg, Regina, Calgary, Edmonton, Vancouver, Victoria

In addition, there are sales and service staff located in 11 other communities across Canada.

All locations stock over 100,000 consumable items.

Ash Temple can assist you to —

- locate dental practice sites
- search for associates
- secure staff
- design your office
- help in selling your practice

Ash Temple's Equity Program allows you to set up a convenient schedule for delivery of supplies with a variety of payment options, volume discounts and rebate plans.

The annual Ash Temple Equity Grant supports dental associations and dental faculties of Canadian Universities.

See us at booth No.'s 102, 104, 106, 108, 110, 112, 201, 203, 205, 207, 209, 211 at the CDA Convention.

JOURNAL
Canadian Dental Association
L'Association dentaire canadienne

August 1992 Vol. 58 No. 8

Clinical Features

The Ideal Bonding System 623 Ronald E. Jordan, DDS, MSD; Makoto Suzuki, DDS, MS, DMD

Practice Management

Perio and Practice Management: The Inextricable Link 627 Jenny Thomas, RDH, BA, M.Ed.

Working Smarter Not Harder: Maximizing Your Team's Performance 631 Risa Pollack

Aptitude + Attitude = Success 635 Dick Barnes, B.Sc., DMD

The Dental Practice Purchase/Sale — Creating a Win-Win Transaction 637 H. Jack Stockton, DMD, CFP, MBA

Leadership as the Foundation of Your Practice 643 James R. Pride, DDS

Scientific

Oral pathology in Canada: A survey 647 Thomas D. Daley, M.Sc., DDS, FRCD(C); George P. Wysocki, DDS, PhD; James H.P. Main, BDS, PhD, FDSRCS, FRC (Path), FRCD(C) et al.

Vital tooth bleaching: Review and current status 654 Laura Tam, DDS

A preliminary comparative study of the retentive properties of four post and core systems in etched preparations 665 Martin Gelfand, DDS, FRCD(C)

Cover: 1992 CDA Convention.

Departments

598 Announcements
599 Editorial
601 President's Column
603 A Year of Celebration
604 Book Reviews
605 News Update
608 Advertisers' Index
609 Library
610 DAP Advisor
613 CDSPI Reports
615 Dental Lab & You
619 Practice Management & Success
621 CDA Convention
673 CDA Access Ads

Announcements

NATIONAL HIGHLIGHTS

August 28-29
1992 Canadian Dental Association Board of Governors Meeting
Calgary, Alberta

August 29-September 2, 1992
1992 Canadian Dental Association Annual Convention
Calgary, Alberta
See blue pages for more details
or call Christine Leadman
1-800-267-6354
(613) 523-1770

September 17-20, 1992
Canadian Academy of Endodontics 28th Annual Meeting
Victoria, British Columbia
Dr. Raymond Greenfeld
(604) 270-8754
Dr. Leonard Atkinson
(604) 592-2511

September 24-26, 1992
Canadian Academy of Prosthodontics/ Canadian Academy of Restorative Dentistry Joint Annual Meeting
Montreal, Quebec
Olga Chodan (514) 398-7221
Fax (514) 398-8900

September/Septembre 1992

September 21-25: FDI World Dental Congress being held in Berlin, Germany. For details, contact: Christine Leadman, CDA Conventions, 1815 Alta Vista Drive, Ottawa, Ontario, K1G 3Y6.

September 30-October 3: 1st International Congress of the Turkish Dental Association being held at the Ataturk Cultural Center in Izmir. For details contact: Turkish Dental Association, T.D.B. Izmir Dishekimler Odasi, Mahmut Esat Bozkurt Cad. No. 38/4, 35220 Alsancak, Izmir, Turkey.

October/Octobre 1992

October 1-4: Adhesion Dentistry Bermuda Style with Dr. R.E. Jordan, Dr. John Kanca and Mr. Byoung Suh. Registration for the lectures must be made through Clinical Research Dental, P.O. Box 28040, London, Ontario, N6H 5E1, or call, 1-800-265-3444 or (local) (519) 641-3066.

October 14-17: 2nd Annual Meeting of the Bulgarian Dental Association will be held in Plovdiv and will be jointly organized with the Quintessence Publishing Group. For more information contact: Dr. J. Mihailov, Director, the Bulgarian Dental Association, 1000 Sofia, 34-A Bulgaria Ave., Bulgaria.

October 16-17: Southern Ontario Surgical Orthodontic Study Group Meeting in Windsor, Ontario. For details, contact: Dr. Jeff Berger, (519) 259-2632 or fax (519) 258-2637.

October 17-22: American Dental Association Convention will be held in Orlando, Florida. For information, contact: the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois, 60611, or call: (312) 440-2500.

October 28-31: 1st International Congress of the Turkish Society of Restorative Dentistry will be held in Antalya, Turkey at the Antalya Sheraton Voyager. For more information write: Dr. Fatma Koray, Faculty of Dentistry, University of Istanbul, 34390 Capa, Istanbul, Turkey.

October 30-31: Craniofacial Development and Anomalies Conference will be held at the University of Alberta. For information contact: Dr. G.H. Sperber, Department of Oral Biology, University of Alberta, Edmonton, Alberta, T6G 2N8, (403) 492-5194, or fax: (403) 492-1624.

November/Novembre 1992

November 18-20: Swedental Annual Dental Fair in Stockholm, Sweden. For details, write: Ms. May-Britt Carlsson, Press Officer, 125 80 Stockholm, S-125 80 Stockholm, Sweden.

November 28-December 3: Greater New York Dental Meeting being held at the Jacob K. Javits Convention Center, New York Marriott Marquis in New York City. For more details, contact: Greater New York Dental Meeting, New York Marriott Marquis, 1535 Broadway - 3rd Floor, New York, NY, 10036-4017 or call: (212) 398-6922.

CONTINUING EDUCATION PROGRAM
University of Alberta
75th Anniversary

September 12
Successful Strategies for Oral Hygiene Instruction for the High Risk Patient

October 3
Oral Oncology - an Update for General Dentists

October 17
Improve Your Instrument Sharpening Skills, a Participation Program

October 23
Removable Prosthodontics: Designing, Communicating, and Executing

October 30
The Successful Smile...Esthetics for Both Patient and Dentist

November 7
Changing Times: Issues in Preventive Modalities

November 14
Basic Rescuer CPR and Airway Management

November 20-21
Clinical Photography: A Hands-On Approach

November 27-28
Prosthodontic Aspects of Osseointegration - a Course for the General Dental Practitioner

For further information, contact:
Dr. Steve Patterson or Ms. Debbie Grant
Faculty of Dentistry, University of Alberta
(403) 492-5023 or (403) 492-8240

CONTINUING DENTAL EDUCATION
Dalhousie University

October 2, 1992
Endodontic Panaceas I have Known
Presenter: Dr. James Jensen
Location: Halifax, Nova Scotia

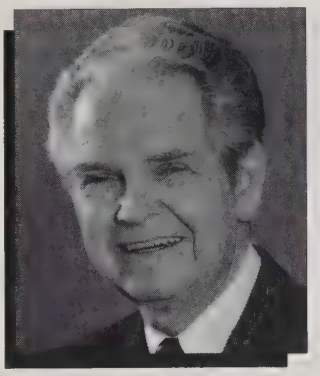
October 3, 1992
Clinical Oral Pathology for the Dental Team
Presenter: Dr. John Lovas
Location: Halifax, Nova Scotia

October 17, 1992
All The Medicine You Wanted to Know and Ups and Downs, Joy and Griefs of Office Surgery
Presenter: Dr. Myers S. Leonard
Location: Wolfville, Nova Scotia

For more information, please contact:
Alumni Affairs and Continuing Education
Faculty of Dentistry, Dalhousie University
Halifax, Nova Scotia B3H 3J5
(902) 494-1674

Editorial

PANIC IN THE STREETS



Dr. P. Ralph Crawford

They've done it again. Television has seized on the findings of a controversial study to stir up public anxiety about modern dentistry. First it was the mercury toxicity of dental amalgam, now it's the potential for HIV to be spread by dirty dental handpieces.

Two prime-time television programs, ABC's *Prime Time Live* and CBS's *Street Stories*, both broadcast in May, have sent the public into near panic, and raised new concerns about the safety of seeking dental treatment.

No one can blame them. The effectiveness of current infection control techniques in general, and of the potential for handpieces to spread disease in particular, were brought into question by the two programs. But television's investigative reporters shaped the handpiece story to suit their own ends, and never really gave the public an opportunity to make a fair evaluation of the facts.

This *Journal* has no quarrel whatsoever with the concept of freedom of the press. Indeed, the free flow of information is a vital aspect of democracy, and it's one that's worth protecting. But freedom of the press also requires that the information produced for public consumption is honest, reasonable and fair.

Like the story that *60 Minutes* ran on dental amalgam in December 1990, the stories that *Street Stories* and *Prime Time Live* broadcast on handpiece sterilization were not reasonable, not fair, and of dubious veracity. Their intent was not to present the facts, but to be sensationalist.

In response to the mercury amalgam controversy created by the *60 Minutes* story, the *Journal* ran an editorial entitled "Responsibility" (Crawford, P.R. 57(2):79-80, 1991). It seems appropriate, in light of the latest attempts to stain the good name of the dental profession, to repeat what we said back then, namely: "The media, particularly television, has as a priority to sell time. The keyword is "ratings" and seldom does anything supersede it. Ratings bring advertisers and advertisers bring *money*; that's the bottom line."

Our opinion of some investigative reporting has not changed in the last year and a half.

Fortunately, as it did during the dental amalgam scare, CDA was able to react quickly to the handpiece controversy. We alerted our members to the fact that two potentially controversial programs on dental handpieces were slated for broadcast, and provided them with facts and information to respond to their patient's likely concerns. As a result, public panic and distress were kept to a minimum.

CDA has always made every effort to provide Canadian dentists with the latest scientific infection control data available. In February 1988, for example, the association convened one of the first infection control conferences in North America. That was followed, in April 1989, by the publication of CDA's "Recommendations for Infection Control Procedures."

A second conference, on "The Impact of HIV and Other Infectious Agents on Oral Health Care," was co-sponsored by CDA in April 1991. It led to the development of a seven-point infection-control plan, which was updated and approved by the CDA board of governor's that August.

CDA's infection-control policies are based on the latest scientific evidence. These policies are designed to protect our patients' interests, as well as those of the dental profession, and are not born out of panic or coercion. The decisions made by the CDA board of governors on behalf of organized dentistry are based on reason, not fear.

Over the past few months, this reasoned approach has been brought to bear in a series of articles on infection control by Dr. John Hardie, the *Journal's* infection control editor.

In effect, we asked Dr. Hardie to compile the most recent scientific data on infection control, and present that information to our readers in a way that was devoid of public pressure and panic. In the history of the *Journal*, there has not been a series of articles that resulted in as many comments, letters to the editor and requests for reprints as this one has.

In coming months, the *Journal* will continue to keep the profession informed on the latest infection control data, especially as it relates to the HIV and AIDS controversy. Our approach and attitude will be very much that of Dr. Enid A. Neidle, the assistant executive director, scientific affairs, for the American Dental Association, who wrote:

"Infection control is not higher mathematics. It's a series of easy, sensible, logical steps that any dentist can provide reliably and consistently...Let's take the worry, the anxiety and the insecurity out of infection control and get on with the business of being good dentists. And let's try to remember that the dental office has not been a sink of disease and despair, but rather a place where patients can go for compassionate treatment and unsurpassed preventive care." ■

P. Ralph Crawford, BA, DMD
Editor, Journal of the Canadian Dental Association

First Aid For Dentin Sensitivity

Butler PROTECT® Dentin Desensitizer: A two minute treatment that provides immediate relief for your patients and a rewarding service for your practice.

Patients may not always complain about hypersensitivity, but studies show that 40 million people in the U.S. experience some form of sensitivity. Often, a sensitivity reaction is triggered or intensified by dental procedures, including prophys.

Butler PROTECT Dentin Desensitizer can provide months of relief from hypersensitivity and has been proven effective in use on over 1 million actual patients.

PROTECT's patented formula works by combining with ionized calcium in dentinal fluid to form a highly insoluble calcium oxalate barrier that immediately blocks pain stimuli to the pulp. Because it's effective wherever dentin is exposed, it makes an excellent cavity liner and post-surgical treatment for sensitivity, and it takes only two minutes to apply.

PROTECT Dentin Desensitizer is now available in two convenient dosage forms. Choose between a hygienic unit-dose ampule applied directly to the tooth or a multi-dose dropper bottle that's used with a cotton pledget and dappen dish reservoir for control in targeted areas.

Make PROTECT a much appreciated addition to your practice.

Butler®
For A Lifetime of Dental Well-Being™

See us at booth No. 109 at the CDA Convention

John O. Butler Company • 515 Governors Road, Guelph, Ontario N1K 1C7 • FAX: 1 519 837-2669 • Phone: Toll-Free 1 800 265-8353
Toronto Direct 283-2263; In Ontario and Quebec: 1 800 265-7177 Service en Francais: 1 800 265-7203

Covered by one or more of the following U.S. Patents: 4057621, 4538990.

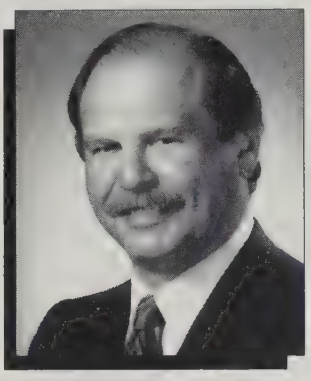
© Copyright 1990 John O. Butler Company

President's Column

REFLECTIONS

Last week, when I found time to reflect on my year as CDA's president, I somehow found myself thinking about football. More specifically, about my playing days with the Winnipeg Rods.

When I was invited to try out for the team, some 30 odd years ago, the Rods' organization and junior football were big time in Canada. And although football players didn't make a lot of money in the '50s and '60s, the game frequently opened doors for them.



Dr. Les Allen

Even now, looking back on those blissful days, I still believe that my stint with the Rods was a wonderful opportunity, that it helped to shape my life and future career. Certainly, it brought me together with individuals from all walks of life, and ultimately taught me to accept people for who and what they are. I learned to respect the goals and aspirations of my fellow players, while remaining sensitive to their attitudes and their feelings toward others.

These lessons, while learned on the playing field, continue to serve me well today – a fact that may explain why my brief football career and my participation in organized dentistry seem so intertwined.

Yes, it's true that a lot of my time as CDA's president has been spent on policy issues, and, yes, issue management has become increasingly important for the association, but when you get right down to it, we deal with people. Dental patients, dentists, government, the media and Canadians in general – we communicate with all of them. And as the national voice of dentistry, that's what CDA is all about.

We've played our role as the voice of dentistry with foresight and vigor, placing CDA in the spotlight on the appropriate cue, while always continuing to work diligently behind the scenes. We've made significant gains in the tax area, stayed on top of the handpiece issue, and maintained a highly-successful Dental Awareness Program, among other worthwhile endeavors.

These achievements were brought about through teamwork. They reflect the dedication of CDA's executive council, the strength of our management committee, the varied skills of our hard-working staff, and the abilities of Jardine Neilson, our multi-talented executive director.

In a nut shell, CDA has put together a winning team – at both the volunteer and the staff level. With people of this calibre behind me, I have enjoyed an extremely rewarding, and certainly satisfying, year as CDA's leader. Now the time has come to pass the chain of office on to a new leader. But I can assure you that my sense of accomplishment over everything CDA achieved in 1991-92 won't fade away when I welcome Dr. Bernard Dolansky as CDA's next president later this month. It's something that I will carry inside me as long as I live.

Just as my days with the Rods gave me much more than an opportunity to play pro football, my term as CDA's president has left me with a great deal more than a feeling of fulfilment. During my rise through the ranks of organized dentistry, I developed close friendships with many of my colleagues on CDA's councils and committees, and with staff members. These, too, will last a lifetime.

I also sense that my year as CDA's president has been a watershed year for the association, one that signalled oncoming changes in many areas of both CDA and organized dentistry. I see a new relationship developing between CDA and the provincial licensing authorities, new and better things for the National Dental Examining Board, changes at CDSPI (some of which are already under way), and the bringing together of the Canadian Dental Foundation and the Canadian Fund for Dental Education. All of these initiatives will constitute major steps forward for organized dentistry.

This year will also go down in CDA history as the year CDAnet, dentistry's electronic data interchange network, really took hold in Canada. Dentists are subscribing to the program in record numbers, and more and more insurance carriers are coming on board. There is still a lot of work to be done in the CDAnet area, but the long-term success of the program now seems assured.

I am very proud to have been a part of CDA, and extremely grateful to have had the chance to lead this great organization. This type of opportunity comes just once in a lifetime, to a few lucky individuals, and I am thankful beyond words that it came to me. But now it's time to set my sights on new horizons. I look forward to being involved in the changes and growth that will occur within both CDA and organized dentistry in the future, and to helping a new generation of leaders steer the course of our profession. ■

Les Allen, B. Comm., DMD
President of the Canadian Dental Association

NEW

Now see the future in just 5 minutes with

Evalusite™

PERIODONTAL TEST

Accurately detects the presence or absence of periodontitis in conjunction with clinical parameters.

Because detecting specific organisms helps monitor periodontal treatment and helps determine the endpoint of periodontal therapy,* today there's **Evalusite.**

Evalusite Periodontal Test not only detects but also identifies antigens of the three bacteria most commonly associated with periodontitis: Aa *(Actinobacillus actinomycetemcomitans)*, Pi *(Prevotella intermedia)*, and Pg *(Porphyromonas gingivalis)*. With a simple color scale comparison, easy-to-read indications of specific antigen levels provide a more conclusive correlation with disease severity.

Evalusite Periodontal Test allows you to test two suspect areas in one device and get chairside results in only five minutes.

Evalusite Periodontal Test could mean a better future for your periodontal patients.

A more conclusive chairside indicator of periodontitis.

Evalusite™

PERIODONTAL TEST

For further information call **1-800-GO KODAK**, or in Toronto 766-8233.

*Genco RJ, Zambon JJ, Christersson LA. Use and interpretation of microbiological assay in periodontal disease. *Oral Microbiol Immunol* 1986; 1:73–79.

DENTAL PRODUCTS

Kodak

© Kodak Canada Inc. 1992. Kodak and Evalusite are trademarks.

See us at booth No. 336 at the CDA Convention

A Year of Celebration

University of Alberta Dental Faculty Celebrates 75th Year

In 1916, just eight years after the University of Alberta was founded by Alberta's first Premier, A.C. Rutherford, the initial steps were taken toward forming a dental school.

A year later, in 1917, the university gave the responsibility for dental education to the faculty of medicine, and created a department of dentistry. The department provided the first-ever dental course offered in Western Canada, and would be the country's only dental school east of Toronto until a dental faculty opened in Manitoba in 1958.

Alberta's initial dental program required four years to complete, and only two of those were actually taught at the University of Alberta. Undergraduates completed their final two years of dental education at either the Royal College of Dental Surgeons in Toronto or McGill University in Montreal.

Dr. Harry E. Bulyea

The first dental course offered in Alberta attracted three students. Dr. Harry E. Bulyea, who taught dentistry at the university from 1917 until 1942, provided the first lectures. During those years, Dr. Bulyea became one of the "giants" of western Canadian and international dentistry.

Dr. Bulyea earned his dental degree from Harvard in 1897. He practised for a few years in Atlantic Canada, but moved west in the early 1900s. In 1914-1915, he undertook postgraduate studies at Northwestern University in Chicago, under Dr. E.H. Angle, and received special instruction in radiology. Two years later, he joined the faculty at the University of Alberta, where his influence on dental students was felt for 25 consecutive years prior to his retirement as director of the dental school in 1942.

Nor was Dr. Bulyea's genius limited to dentistry. He was an accomplished artist and sculptor, a pioneer in color photography, and an outstanding lapidary. He was also a renowned alpinist, and continued skating and skiing well past his 90th birthday. Dr. Bulyea died February 5, 1976, at the age of 103.

1923 – Four Year Program

In 1923, a full four-year dental program was instituted at the University of Alberta, as well as new, more stringent admission standards. Applicants had to have completed at least one year of a bachelor of arts program to gain admission into dentistry.

Faculty of dentistry, University of Alberta

Four years later, in 1927, the first seven DDS degrees were awarded by the University of Alberta. However, the dental department remained part of the faculty of medicine until 1930, when it achieved "school" status and named Dr. Bulyea as its first director. The school became a full-fledged dental faculty in 1944.

Five Deans in 48 Years

Dr. W. Scott Hamilton was appointed as the dental faculty's first dean in 1944, and remained in the post until 1958. He was followed by Dr. H.R. MacLean, 1958-1970; Dr. James McCutcheon, 1970-1978 and Dr. G.W. Thompson from 1978-1989. The current dean is Dr. Norman K. Wood.

Alberta's dental faculty has been located in the university's Medical Sciences Building, now the Dentistry/Pharmacy Centre, since 1921. A new clinic was built in 1948, which was followed by the construction of another new facility in 1961, when the class size was raised to 50 and a School of Dental Hygiene was established. This year, however, enrolment in the dental faculty was restricted to 30 students.

Where Did the "Royal" in RCDS Come From?

One of the dentistry's mysteries, down through the years, has been the inclusion of the word "Royal" in the official name of Ontario's licensing body, the Royal College of Dental Surgeons of Ontario (RCDS). It is the only provincial licensing body in Canada to have royal incorporated into its name.

When the bill to establish RCDS was introduced in January 1867, the protocol of the day prescribed that in order for "Royal" to be affixed to a document, it had to go from the secretary of state to the governor general, to Buckingham Palace and on to Queen Victoria.

How that was accomplished between the bill's introduction in 1867 and its acceptance into law on March 3, 1868 (before telephones and fax machines), no one will ever know.

The President's Year of Celebration

This is a special year of celebration for CDA's president, Dr. Les Allen. Dr. Allen celebrates his first half century this August. Happy 50th birthday Mr. President! ■

Book Reviews

Precision Fixed Prosthodontics: Clinical and Laboratory Aspects

By Prof. Dr. M. Martognoni and Alwin Schonenberger

1990, Quintessence Publishing Co., Inc. Chicago
580 pages, color illustrations

From the outset, the authors declare that their book deals with dental restorations using completely different methods from those that have been used before.

The book is aimed at both dentists and dental technicians who wish to understand the biological principles behind crown construction, as well as the problems that may arise in placing a crown restoration near the dentogingival junction.

A consistent, logical sequence is followed in each chapter. The authors begin the book with a discussion of dentoperiodontal relationships and follow the progression of treatment from the biologic principles of tooth preparation all the way to crown cementation.

The scope of the material covered in the book is extensive and includes exhaustive research material, but the text is labored on occasion. Fortunately, it is enhanced by series after series of especially useful and vivid color illustrations. Both the laboratory and clinical photographs are exceptional in their clarity, color reproduction, and illustrative efficiency. Regrettably, however, the placement of the reference list at the end of the book is not convenient for those seeking a quick analysis of the literature cited in the text.

The book includes a detailed discussion of the authors' methods for gathering information about the prepared tooth from tissue handling, impression making and the production of the cast. Although some aspects of the material presented may conflict with conventional teaching methods, the authors' step-by-step approach will provide many helpful hints to both the dentist and dental technician alike.

In Chapter 7, "The Casting," and chapter 8, "Standardization of the Casting System and Parameter of Mechanical Precision," the authors present an in-depth analysis of their techniques for transforming a wax coping into metal. The reader, unless he or she is involved in some research activity, may find this area of discussion quite intimidating in its detail. However, the authors encourage dental technicians to create individual, customized seating systems that are capable of guaranteeing a standard level of work regardless of the casting equipment used.

Chapter 9 is concerned with the final laboratory stage of porcelain application. The authors analyze porcelain veneer application and demonstrate how it is affected by different types of marginal finish. This is followed by an analysis using a stereomicroscopic method of evaluation of the cementation and final precision of the restoration, based on the authors' research findings on cementation procedures.

In summary, one can only be in awe of the effort that the authors have made to produce the ideal biologically-acceptable restoration, and the text serves as a true mirror of their work.

Reviewed by:
Dr. John J. Carpendale, B.Dent.Sc., M.Sc.D.
Clinical assistant
Professor in prosthodontics, University of British Columbia.

A Clinical Atlas of Endodontic Surgery

by Ralph Bellizzi and Robert Loushine

1991, Quintessence Publishing Co., Inc., Chicago
135 pages, color illustrations

With the aging of the North American population, the number of endodontic procedures being performed in dental practice appears to be increasing. Given the complex anatomy of the root canal, and the technique sensitivity of the root-canal procedure, a certain percentage of these cases fail. This, in turn, has led to a proportional increase in the demand for endodontic surgery.

Many of these surgical demands are becoming more and more complex in nature. The fact that extensive surgical experience is not offered by every graduate endodontic program, combined with a lack of surgical texts in the endodontic literature, has created a large demand by endodontists for advanced training in endodontic surgery. This book, therefore, fulfils a distinct need.

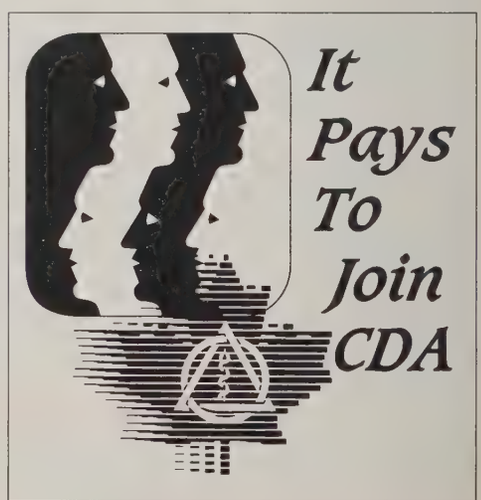
Due to the broad coverage it gives to endodontic surgery, the book could be of value to general practitioners, graduate students, and novice endodontists, as well as to seasoned, experienced endodontists and teachers. The author assumes that the reader already has a basic understanding and knowledge of endodontic surgery, however.

This book is not an all-encompassing text on endodontic surgery, but a "how to" atlas that takes a clear and concise approach to many aspects of endodontic surgery. Its early chapters are dedicated to the basics of endodontic surgery, i.e. armamentarium, flap design, suturing, incision and drainage, trephination and decompression. It then proceeds in a building-block manner, providing descriptions of surgical techniques by anatomical area. This process begins in the maxillary anterior area and ends up describing complex molar surgery, including a section on maxillary molar palatal root surgery. The book concludes with a useful chapter on postsurgical complications.

The illustrations in this text are definitely a highlight. The photographs are exceptional, in brilliant color, and supported by clear, concise graphic illustrations and high-quality radiographs. Clinical photographs are enhanced by comparable photos of dissected skulls.

In summary, this book is an excellent reference for anyone performing endodontic surgery, and should be considered as a "must have" volume for both private and dental school libraries.

Reviewed by:
Marshall D. Peikoff, DMD, M.Sc.D, FRCD(C).
Associate professor, faculty of dentistry, University of Manitoba.



News Update

New Brunswick Dental Society Installs New Board

Dr. Jean Louis Rioux of Grand Falls (far right) was installed as president of the New Brunswick Dental Society (NBDS) May 30, during the group's 1992 annual meeting in St. Andrews.

Dr. Rioux, a 1978 graduate of the dental faculty at the University of Montreal, has served on the society's executive committee for four years. He maintains a private practice in Grand Falls. The other NBDS executive committee members are (left to right): Dr. Robert Murray, Moncton, president-elect; Dr. Luce Marchand, Newcastle, past-president; Dr. Paul Castonguay, Grand Falls, acting registrar; Dr. Stephen O'Brien, Moncton, chairman of the board; and Barbara Wishart, executive director. ▪

McGill Geriatric Dentistry Course Earns High Marks

Twenty-one Quebec dentists have completed McGill University's first-ever course in geriatric dentistry.

Organized as a joint effort of the McGill dental faculty's continuing education department and the department of community health at Verdun Hospital, the bilingual course was divided into two distinct sections. The first part featured 45 hours of didactic study, while the second part incorporated 20 hours of clinical training.

Based on the popularity of its initial geriatric dentistry course, McGill plans to offer a similar 15-hour program this fall. The new course will target allied dental personnel as well as nursing home personnel. A full-length geriatric dentistry course will probably be offered to dentists in 1993. ▪

Montreal Dental Society Nominates New President

Dr. Jacinthe Larivée has been nominated as president of the Montreal Dental Society for 1992-93.

After earning her DMD at the University of Montreal in 1980, Dr. Larivée undertook postgraduate training at the University of Toronto, and was awarded a certificate in periodontics in 1985. She has served on the board of the Montreal Dental Society for four years. ▪

Dr. Jacinthe Larivée

Dentists and Dragons

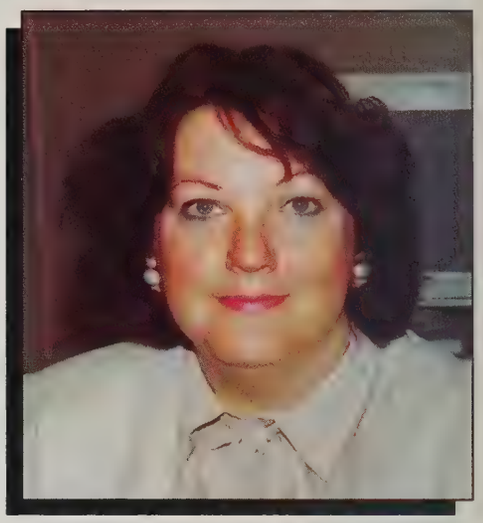
It looks like the Dragon Drillers rowing squad needs a little more practise. Put together by the Chinese Canadian Dental Society of British Columbia, the team finished close to the middle of the pack in the Vancouver International Dragon Boat Festival, recreational category, last June.

Geriatric Dentistry Graduates (left to right): Drs. Paul Massicotte, Edmond Khazen, Suzanne Boivin, Denis Rompré, Marcel Tenenbaum, Doris Nasr-Ranko, Anthony Iannella, Ralph Barolet (dean, McGill faculty of dentistry), Michael Wiseman, Sarah Tadros, Lawrence Cohen, Jean-Robert Vincent, Henry Torres, Guilaine Paré, Jean-Luc Gravel, Marius Crête, Élizabeth Bergeron, Nive Boudreau and Dinah Absi. Missing from photo: Drs. Yu Kwong Li, Avi Schetritt and Robert Tremblay.

Strutting their stuff on False Creek: The Dragon Drillers practise their paddling prior to the Vancouver International Dragon Boat Festival.

The paddlers were sponsored by the College of Dental Surgeons of B.C., the U.B.C. faculty of dentistry, Ash Temple, Nobelpharma Canada Inc., Hoechst Canada, Aurum Ceramic Dental Laboratories Ltd., and Fine Arts Dental Laboratories Inc. ■

Membership Services Manager Hired



Carol Anne St. Laurent

In an effort to better serve the needs of its members, as well as to increase membership levels in the voluntary provinces, CDA has hired Carol Anne St.

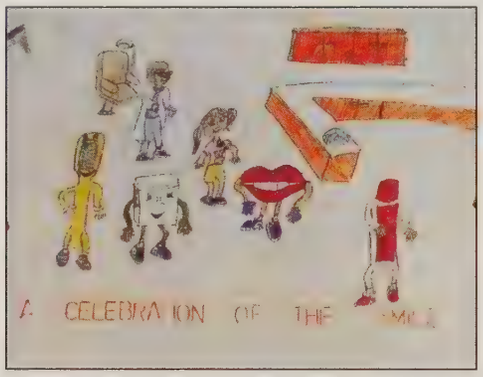
CDA Poster Contest Winners

Four Canadian students have won first place for their age group in CDA's nationwide poster contest – held annually in conjunction with dental health month.

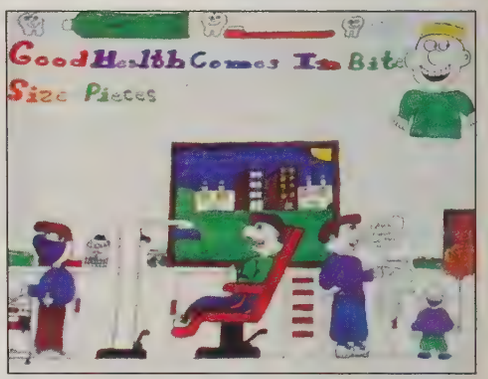
First-place certificates were awarded to: Doug Lawrence, a grade 6 student at C.P. Blakely School in Sylvan Lake, Alberta, for "Brush Your Teeth Regularly"; Jennifer Mauws, a grade 3 student at Tanner's Crossing School in Minnedosa, Manitoba, for "A Celebration of the Smile"; Jenny Doherty, a grade 4 student at Sakaw School in Edmonton, Alberta, for "Good Health Comes in Bite Size Pieces"; and Dean Skidmore, a grade 1 student at Vauxhall Elementary School in Vauxhall, Alberta, for "Make Your Teeth Last a Lifetime."

The 1992 poster contest winners were selected June 6 by CDA's executive council. Each of them received a framed certificate to display at his or her school, and every member of a winning student's class was presented with a "Live Bob" T-shirt.

As in previous years, the poster contest was organized at the provincial level. In 1992, posters were received from Alberta, Saskatchewan, Prince Edward Island, Nova Scotia and Manitoba. ■



A Celebration of the Smile



Good Health Comes In Bite Size Pieces

Brush Your Teeth Regularly

Make Your Teeth Last a Lifetime

Laurent to fill the recently-created position of manager, membership services.

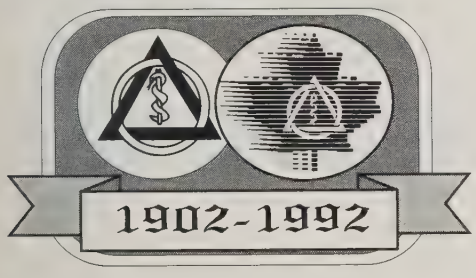
Formerly a national service manager with Birks Canada, based in Montreal, Carol brings a wealth of experience to CDA. In her new role, she will be responsible for refining the mix of services offered to CDA members, and for ensuring that those services are of the highest-available quality.

"I am really excited about joining CDA's membership services team," said Carol Anne. "CDA is a dedicated, caring organization that serves both its members and the general public. I am looking forward to the challenges that lie ahead." ▪

CDA Museum Collection Growing

CDA's museum, based at the association's head office in Ottawa, Ontario, recently received a number of new, exciting donations.

"These contributions are wonderful additions to our museum, and reflect well Canada's rich dental heritage," said Dr. P. Ralph Crawford, museum curator and *Journal* editor.



Sincere thanks are extended to:
Dr. D.H. Protheroe (Ottawa, Ont.): a 1889, 12th-edition of *Harris' Principles of Practice."*

Mrs. Jane Carleton Santoro (Port Washington, N.Y.): the 1862 certificate of indenture and the 1886 RCDS Articles of Agreement of Practice of her grandfather, Dr. Martin Edward Snider.

Dr. Donald Beauprie (Deep River, Ont.): the 1928-1940 minutes of the Renfrew County Dental Society.

Dr. Arthur Schwartz (Ottawa, Ont.): a collection of dental journals from the 1930s.

Dr. William MacPhee (Eganville, Ont.): a turn-of-the-century mobile dental unit carrying case and dental instruments.

Dr. Duncan McDonald (Ottawa, Ont.): a metal examination stool.

Dr. Arthur Tinginys (London, Ont.): a 1890s' cable-driven dental engine.

Dr. Julian Tsafaroff (Toronto, Ont.): a Dr. Reiter automatic surgical mallet.

Dr. J. Cummings (Ottawa, Ont.): a metal dental stool from the early 1920s.

Dr. Kevin O'Grady (North Bay, Ont.): a 1950's army dental chair used during the Korean war.

Anyone wishing to make a donation to the museum is asked to contact Dr. Ralph Crawford, Editor, *Journal of the Canadian Dental Association*, toll free, at: 1-800-267-6354. ▪

CFDE Announces 1992-93 Grants and Awards

Trustees of the Canadian Fund for Dental Education (CFDE) have approved $248,803 in grants and awards toward 1992-93 dental education, awareness and research programs.

The funding, approved during CFDE's annual general meeting in May, will go to a variety of programs this year, including CDA's Dental Information System. It received $30,000 from CFDE for the production of a series of eight patient-orientated information booklets on dental health. This grant was made possible through a generous donation by Colgate-Palmolive.

In addition, the Association of Canadian Faculties of Dentistry (ACFD) received $31,600 for its 1992 Summer Teaching Institute, and the Allied Dental Educators Committee of the ACFD was granted $16,020. These funds will go toward planning sessions for the revision of ACFD's national dental hygiene competency document and the national dental assisting competency document.

Also of note: The 1992 Teaching Conference on Pediatric Dentistry received $8,000, with the CDA/CFDE Canadian Dental Students' Conference receiving $11,000 toward its 1992 conference. A pilot seminar on "Marketing Dental Health," to be held at the University of Toronto, received $2,000.

A $2,400 grant was made to a "Clinical Trials: Design and Conduct" workshop sponsored by the Canadian Association for Dental Research (CADR).

Niagara College's Dental Hygiene Program, offered at the school's Welland, Ontario, campus, received dental equipment valued at $22,133. This grant, made possible through the generous sponsorship of SciCan of Toronto, will assist the college in its efforts to reinstate its dental hygiene program, which was suspended in 1988.

CFDE granted a total of $32,500 in teacher/researcher fellowships this year, including four Warner Lambert-sponsored fellowship awards of $2,500 each for an existing dental teacher, two awards for dental hygiene teachers and a fellowship award for a dental assisting teacher. The fund's Henry Thornton Award for the most meritorious applicant, sponsored by Dentsply Canada Ltd, was granted to 16 individuals. Each received $1,000.

The $10,000 Wrigley Summer Student Research Awards Program for dental students conducting summer research projects in oral biology — sponsored by Wrigley Canada — was awarded to the universities of Manitoba and Alberta, and Dalhousie University.

Again in 1992, each of the 10 Canadian dental faculties received an annual CFDE unrestricted grant of $1,500 and two undergraduate grants of $1,000. In addition, the universities of Western Ontario and Toronto, and Dalhousie and McGill universities were each allocated $3,750 from the Lorne E. MacLachlan Endowment Fund toward education and teacher training in removable maxillofacial prosthodontics.

CFDE also granted $11,000 to the National Dental Examining Board of Canada, which will be used, in part, for the board's 40th anniversary symposium "Testing and Competency Assessment for the National Standard."

The National Dental Epidemiology Project received $7,000 toward the establishment of a data bank of epidemiological data that will demonstrate the present and projected oral health disease patterns of Canadians.

A $1,000 award from Warner Lambert's program in behalf of Ontario Dental Hygienists' Association projects was used to fund the "Sonrisas III" (or "Smiles") clinic in Santo Domingo, the Dominican Republic.

The Murray McDonald Memorial Lecture grant of $2,500 will be used to sponsor the special Murray McDonald guest speaker at the 1992 CDA Convention in August, Sharon Wood. In 1986,

Ms. Wood became the first North American woman to reach the top of Mount Everest. Her presentation, "Mountains of Challenge," focuses on meeting the challenges faced by individuals and organizations alike.

This year, the $4,500 G.W. Barrett Memorial Fund/Nicholas Mancini Fund was divided between five undergraduate-level dental and dental hygiene students who were in extreme financial difficulty.

The CDA/Dentsply dental students' table clinics will receive $10,000 from CFDE in 1992. This program encourages dental students to pursue original research at the undergraduate level.

CFDE funding for these and other programs is provided primarily by annual donations from dentists, associations, business and industry. CFDE depends on support from Canada's dental professionals to provide dental educators and researchers with the funding they need to promote excellence in the dental profession.

For further information, please contact the Canadian Fund for Dental Education, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6, or call 613-731-0493.

Tax receipts are issued for all donations, and the names of individuals contributing $50 or more are recorded in the CFDE Annual Report and Honor Roll. ■

OBITUARIES

Crockford, Dr. Morley J.: Dr. Crockford graduated from the University of Toronto's dental faculty in 1950. He practised dentistry in Toronto for 23 years, but moved to Bracebridge in 1973, where he continued to practise. Throughout the 1950s he provided dental services to northern meteorological stations as well as to the Inuit. Since 1971, Dr. Crockford has provided the Dr. S.A. MacGregor Award to a graduate of the faculty of dentistry at the University of Toronto. He died May 5, 1992, at the age of 68.

Curtis, Dr. Win: Dr. Curtis graduated from the University of Toronto's dental faculty in 1958. He practised dentistry in Ontario.

Gitnick, Dr. Philip J.: Dr. Gitnick graduated from McGill University's dental faculty in 1935. He served with the Canadian Dental Corps from 1940-46 and saw active duty. After the war, Dr. Gitnick spent 10 years studying periodiontics at universities in Toronto, Ann Arbor, Boston, and Philadelphia before being appointed associate professor in periodontics at McGill University in 1965. He maintained a private practice from 1946 until his retirement. Dr. Gitnick was president of the American Academy of Dental Medicine in 1960 and of the Canadian Academy of Periodontology in 1962. He was a life member of CDA. He died in May, 1992, at the age of 83.

Greenlaw, Dr. Rodney M.: Dr. Greenlaw graduated from Dalhousie University in 1978. He practised dentistry in Nova Scotia.

Johnston, Dr. Wilfred J.: Dr. Johnston graduated from McGill University in 1938. He served on the Canadian Dental Corps until 1945. After the war, he was a lecturer at McGill University and in 1957 became associate professor. He was director of plastic reconstruction at Montreal's Queen Mary Veterans' Hospital, and director of the department of dentistry and the cleft palate team at the Montreal Children's Hospital. He had the distinction of being the first dentist to be awarded the Order of Canada. His dental association activities included being a member of the early CDA committee that gave birth to the Royal College of Dentists in Canada. He died in March.

Misener, Dr. H.B.: Dr. Misener graduated from the University of Toronto's dental faculty in 1965. He practised dentistry in Guelph, Ontario.

Mou, Dr. Jonna Bruhn: Dr. Mou graduated from the Royal Dental College of Copenhagen in 1974. She practised dentistry in West Vancouver, British Columbia. She died May 7, 1992.

Stadig, Dr. Rudy P: Dr. Stadig graduated from the University of Alberta in 1986. He practised dentistry in Salmon Arm, British Columbia.

Stanziani, Dr. Victor: Dr. Stanziani graduated from the University of Toronto's dental faculty in 1958. He practised dentistry in Ontario.

Strelioff, Dr. Mac George: Dr. Strelioff graduated from the University of Alberta in 1949, and obtained his certificate in oral surgery from Columbia University, New York, in 1961. He subsequently moved to Edmonton, Alberta, where he maintained a private practice in oral surgery, and taught at the University of Alberta. ■

Advertisers' Index

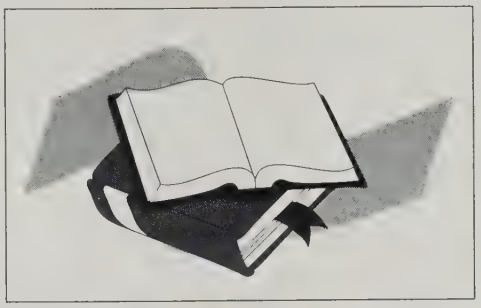
Abel Computers 620
Ash Temple 596
Beavers Dental 626
Bisco Dental 667
Block Drug 658
Bolton Dental 670
Butler 600
CDA Access 625
CDA DIS 672
CDA Leasing 645
CDA Membership 664
CDA Merchandise ... 656, 657
CDAnet 668
CDA RSP 614
CDSPI 632, 662
Ciba Geigy 671, 678
Colgate Palmolive 618
Dentsply ..... IFC
ESPE Premier Dental 622
Exan Computers 634
Germiphene 642
Goodman & Carr 644
Health Group Financial ... 630
Hu Friedy 611
Kodak 602
Maxim Computers 649
McNeil 612, 652
MediDent 636
Noblepharma 628
Oral B ..... IBC
Procter & Gamble 646
SciCan 640
Siemens 661
Syntex 616, 617, 653
TBI Inc. 651
Teledyne 639
Valudent 633
Warner Lambert ..... OBC
Wright Dental 633

Library/Bibliothèque

Practice Building

Bâtir le cabinet

1. Anderson, P.E. "Influencing patients to accept treatment." *Dent Econ.* April 1989; 79(4):31-4.
2. Asmus, D.G. "When patients complain." *Dent Econ.* Nov. 1991; 81(11):51-2.
3. Bennett, T. "Lead patients to better health." *Dent Econ.* Aug. 1990; 80(8):60, 62, 64.
4. Blatchford, W.A. "Building a solid patient base." *Dent Econ.* Oct. 1991; 81(10):61-2.
5. Burnidge, G.D. "Managing the new patient with complaints against a previous dentist." *J Mass Dent Soc.* Winter 1989; 38(1):15-7.
6. Curley, D.K. "Building a values-based practice." *J Calif Dent Assoc.* Apr. 1990; 18(4):41-3.
7. de St. Georges, J.M. "The future is now, seven steps for making it happen." *J Canad Dent Assoc.* Nov. 1991; 57(11):856-7.
8. Doherty, H.F. "The patient-driven practice." *Dent Today.* Sept. 1991; 10(7):78-9, 85.
9. Griffin, A.P. "Communications – The future of dentistry." *J Law & Ethics Dent.* vol. 4, 1991.
10. Gronroos, C. and Masalin, K. "Motivating your patients: Marketing dental services." *Int Dent J.* Feb. 1990; 40(1):18-23.
11. Kelly, M.A. and others. "Reasons patients stay with a dentist." *J Dent Pract Adm.* Jan.-Mar. 1990; 7(1):9-15.
12. Kelly, M.A. and others. "Patient preferences for selecting a dentist." *J Dent Pract Admin.* Jul.-Sept. 1989; 6(3):119-24.
13. Lemons, L., Jr. "Five ways to build a stronger practice." *Dent Econ.* Jun. 1989; 79(6):61-4.
14. Levin, R.P. "Building your practice with an intraoral video camera." *Compendium.* Jan. 1990; 11(1):52, 64, 56.
15. Lindsay, S. "Attracting patients to dentists." *BMJ.* Feb. 4, 1989; 298 (6669):273-4.
16. Logan, H.L. "Communication and persuasion: Factors influencing a patient's behavior." *J Dent Educ.* Sept. 1991; 55(9):570-4.
17. McNutly, B. "A case of practice building." *Ont Dent.* May 1989; 66(4):11-2.



18. Pride, J. "Increasing treatment acceptance in a cool economy." *JADA.* Apr. 1991; 122(4):81-2.
19. Schwartz, B. "Now showing: Video systems develop good patients." *Dent Manage.* Sept. 1989; 29(9):32-6, 38.
20. Simon, J.M. "Building a group practice." Dent Econ. May 1989; 79(5):59-61.
21. Woolfolk, M.W. and others. "Retail dentistry – who seeks care and why?" *J Dent Pract Admin.* Jul.-Sept. 1989; 6(3):125-30.

Acquisitions

Books

1. Blinkhorn, Anthony S. and Mackie, Iain C. *Practical treatment planning for the paedodontic patient.* London : Quintessence, 1992.
2. Dyer, Mervyn R.Y. and Roberts, Bernard J. *Notes on prosthetic dentistry.* London : Wright, 1989.
3. Lamey, P.J. and Lewis, M.A.O. *Oral medicine in practice.* London : British Dental Association, 1991.
4. Walter, J.D. *Removable partial denture design.* London : British Dental Association, 1990.
5. Wander, Philip and Gordon, Peter. *Dental photography.* London : British Dental Association, 1987.

Videos – VHS

1. A Caregiver's guide to oral health. Indiana : Indiana State Department of Health, 31:13 min. ■

One copy of the above package of articles is available for $5.00 to all CDA members and for $10.00 to non-members. (plus GST and, Ontario residents, please include 8% provincial sales tax.)

Daily: 1-800-267-6354

Envoy: CDN.DENTAL.LIB.

FAX: 613-523-7736

Les membres de l'ADC peuvent obtenir pour 5$ et les non membres pour 10$ une copie des articles de la bibliographie ci-dessus.

Aux heures ordinaires:
1-800-267-6354
Programme informatique

Envoy: CDN.DENTAL.LIB

Bélinogramme: (613) 523-7736

CANADIAN FUND FOR DENTAL EDUCATION
TRIBUTE CARDS
Remember that special occasion with
a tribute gift to the Fund.

CFDE FCED

Contact: 105-1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
Telephone: 613-731-0493

VISA

The DAP Advisor

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

Little Things Mean a Lot

As a caring professional, you go out of your way to ensure that your practice offers patients the best possible dental treatment. But what about the non-dental treatment they receive? How do you treat patients as people? Sometimes, it's the little things you do for patients – things they may not even be aware of – that make for a pleasant dental experience. Often, patients only become aware of these things when you don't do them.

Here, then, are a few ideas that you and your dental team can use to improve a patient's dental experience – little things in relation to the effort they require to do, but very large things in terms of how they can linger in the patient's memory.

• **Remember the patient's name:** The first and most basic rule in ensuring patient satisfaction is making sure that everyone on the dental team – or at the very least those who have contact with the patient – know the patient's name. But knowing the patient's name isn't enough. It is also vital to pronounce the name correctly. If, for example, you refer to Mrs. Houghten (pronounced "Hutton") as Mrs. "Hufften," all your best efforts to build good will may have been for nought. You should therefore ensure that the patient's name is not only spelled correctly in his or her file but, if necessary, that there is a note indicating how it should be pronounced. Equally important, you must make sure that your staff knows where these "pronunciation" notes are located.

Sometimes, it's the little things you do for patients – things they may not even be aware of – that make for a pleasant dental experience.

• **Acknowledge the patient at the reception desk:** This applies principally to the receptionist, who greets patients when they arrive at your office, and expedites their departure when treatment is concluded. It can also apply, however, to any dental team member who makes an appearance in the reception area when patients are waiting for an appointment. For example, if the dentist comes up front to talk to the receptionist, and happens to catch the eye of waiting patients, the dentist should acknowledge them. A smile, a nod of the head, a quick "hello" – that's about all you have to do. Those few small gestures can go a long way toward making patients feel good about you and your practice.

• **Talk to patients in language they understand:** Most patients would have a hard time trying to figure out what you were talking about if you told them they had "subgingival calculus." But tell them that they have tartar under their gum line, and everything becomes crystal clear. So, as much as possible, communicate with patients in language they are likely to understand, explaining the terms they are not familiar with, and encouraging them to ask questions about their treatment or any other aspect of their dental health.

• **Talk to, not about the patient:** Sometimes, when the patient is sitting in the dental chair, dentists and their team members have a tendency to talk about the patient as if he or she were not there. You should be aware of this tendency and take steps to overcome it. For example, make a point of addressing the patient throughout the procedure. That way, the patient will not feel like just another warm body in your dental chair, and you will help to put him or her at ease.

• **Inform before you perform:** From the patient's perspective, there is a rule of thumb when it comes to treatment – the fewer surprises the better. Patients who know what to expect during treatment are more likely to be prepared for what comes next. And if they are prepared, their treatment is much more likely to be a calmer, less threatening experience. Minimize the anxiety – tell patients what you are going to do before you do it.

The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

• **Keep dental office business private:** These is a time and a place to discuss office business. It is inappropriate to air office linens in public, especially in the operatory in front of patients. More than that, it can be embarrassing, making patients privy to information that is none of their business, and which may put you and your practice in an unfavorable light. Office affairs should be discussed in private, away from the eyes and ears of everyone it does not concern.

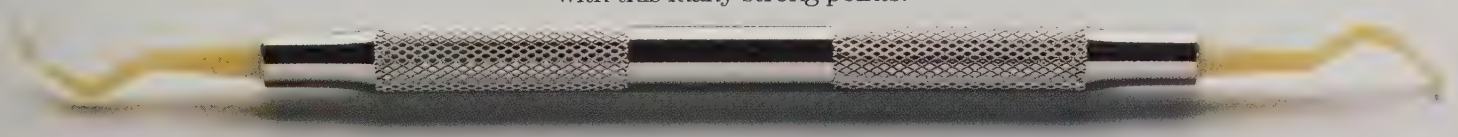
• **Remember, no gossip is good gossip:** Patients are all ears when it comes to the sounds around them. If those sounds are being made by dental staff gossiping about other patients or team members, patients may get the idea that, once treatment is over, they'll be the next item on the gossip hit list. That can be an alarming thought for an unsuspecting person who came into your office for a routine semi-annual teeth cleaning. In the future, he or she may decide to attend a dental practice where gossip does not flow so freely. ■

DENTAL HEALTH Good For Life

Back by popular demand. This DAP Advisor was first published in the August 1990 issue of the CDA Journal.

OUR LATEST INSTRUMENT HAS ITS STRONG POINTS.

Hu-Friedy introduces Implacare,™ the revolutionary implant maintenance instrument featuring Hu-Friedy's disposable Plasteel™ curette tips. Made from a high-grade resin, Plasteel tips are more rigid and less flexible than all other plastic implant maintenance instruments. This makes them superior for removing plaque and calculus without damaging titanium abutments. Combine these paired curette tips with Hu-Friedy's quality handle, and you have an instrument that allows you to perform procedures with greater ease and effectiveness. So ask about Implacare. The only implant maintenance instrument with this many strong points.



Introducing Implacare.
The new implant maintenance instrument.

Hu-Friedy®

(312)975-6100

© 1991 Hu-Friedy

See us at booth No.'s 224 and 226 at the CDA Convention

Edith Martin is 82 and suffers from renal insufficiency, congestive heart failure, anemia, mild dyspepsia...and occasional headaches.

Does she know what analgesic is appropriate if she needs one?

Unless you warn her, she may not know that both ASA and ibuprofen are contraindicated for her condition and could also result in iatrogenic complications.

There are many brands of ASA and ibuprofen sold under different names over the counter. Consequently it could be important to anticipate self-medication for headache, fever or mild-to-moderate pain... and specifically to recommend Extra-Strength TYLENOL* as an appropriate analgesic.

Extra-Strength TYLENOL* acetaminophen:

- offers unsurpassed analgesic and antipyretic efficacy
- is equipotent to ASA, mg for mg
- provides increased efficacy at extra-strength dosage without significantly increased side effects
- has no significant drug-drug interactions
- is unlikely to cause GI and other side effects

EXTRA-STRENGTH

TYLENOL*

acetaminophen

See us at booth No. 506 at the CDA Convention

Unsurpassed efficacy... plus remarkable compatibility

McNEIL McNeil Consumer Products Co.
Guelph, Canada N1K 1A5

For prescribing information see page 52

*Trademark © McNeil Consumer Products Co. 1990
Patient illustrated is fictitious and portrayed by a professional model.
PAAB CCPP

Goodwill – Your Most Valuable Asset

Roughly 20 years ago, there was a shortage of dentists. It was relatively easy for a new graduate to walk into the town or city of his or her choice, hang up a shingle, and wait for patients to line up. How times have changed.

No longer is there any shortage of dentists. In fact, in some locations there is a surplus. A graduate entering the profession today goes into a market where competition for patients has grown tremendously. Success, from a financial point of view, is now much more difficult if you start from scratch. This has resulted in an increasing interest in the purchase of successful practices.

One of the most valuable components of a successful practice today is an intangible asset – goodwill. Goodwill quite often represents more than 50 per cent of the total value of a practice. The items that are typically included in goodwill are:

■ Reputation:

The reputation and the ability of the practitioner in the community where he or she has been practising.

■ Patients:

Practises that have 500 or fewer patients on record are probably not going to keep a dentist busy. When you take no-shows, the migrant population and the number of patients who only go to the dentist when they are in pain into consideration, a more realistic minimum of active patients would be closer to 1,000 or 1,200 (an active patient can be defined as one who has been seen within the last 24 months).

The type and quality of patients must be assured. Careful examination of randomly-sampled patients' charts should give the buyer a good idea as to the kind of patients that will be available for future treatment.

The future growth of any practice rests on the number of new patients that are drawn to it. As a result, the

practitioner's history of attracting patients plays a part in determining the value of his or her practice.

What percentage of the patients have dental insurance? The higher the percentage of patients who have dental plans, the higher the value of the practice, since their payments do not depend on their personal ability pay for health care.

■ Recall System:

A strong and effective recall system plays an important role in the overall value of a practice. There are many systems available to track recalls, from very sophisticated computer programs to simple, manually-updated index cards, but it is the effectiveness of the system that is important. Recalls, which form the basis of a successful, ongoing practice, can account for over 50 per cent of annual production. A percentage of recalls in excess of 30 per cent of annual production adds substantial value, particularly in the goodwill area.

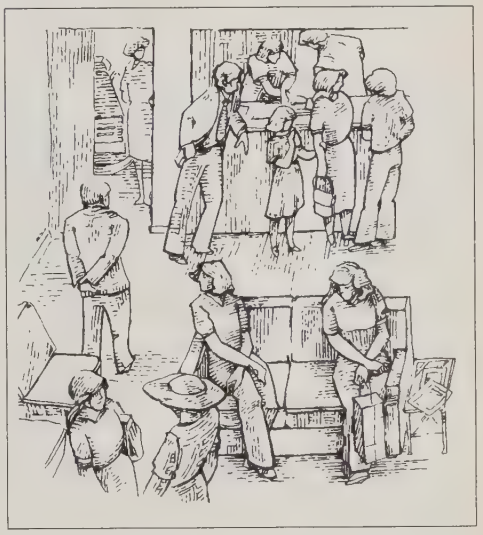
■ Records:

Complete, detailed and comprehensive records help establish practice value, since records often reflect the general character of a practice. Full-mouth radiographs, periodontal chartings, information on existing restorations and a comprehensive medical and dental history are necessary information for the ongoing comprehensive care of patients.

If the seller has taken the time and care to establish base-line information, together with concise and accurate notations of treatment, then it reflects the care and attention to detail of the selling practitioner. Like many items that go into goodwill, it is difficult to apply a direct cost or price to the condition of the records. However, a shrewd buyer would likely consider their condition and completeness in the overall evaluation of the practice.

■ Stable Staff:

If a practice's employees have been there for five or more years, this would indicate to the purchaser that there is a team in place that works, things are well managed, and a routine is established that does not require immediate attention by the purchaser.



Goodwill is intangible. In other words, it cannot be seen, or touched or measured – except on paper. When a business is bought or sold for more than the value of its physical assets, the difference is usually attributable to goodwill. A better understanding of goodwill may be obtained by reviewing some of the wording in judicial decisions for practical purposes:

"Goodwill is the advantage which arises from the good name, reputation and connection of a business; alternatively the benefit which accrues to the owner of a business when the likelihood is that such business earn, in the future, profits in excess of those required to provide an economic rate of remuneration on the capital and labor employed therein." (CIR v Muller and Co.'s Margarine, Ltd.° 1901==AC 217)

"It is the whole advantage, whatever it may be, of the reputation and connection of the firm, which may have been built up by years of honest work or gained by lavish expenditure of money." (Trego and Smith v Hunt° 1896==AC at 24)

"The value of the goodwill of a business is what a purchaser will be willing to give for a chance of being able to keep the connection of which it consists." (Losey v MNR° 1957==CTC 146; 57 DTC 1098)

"In the final analysis, goodwill is based on earning capacity. The presence of goodwill and its value therefore rests upon the excess of net earnings over and above a fair return on the net tangible assets." (U.S. Revenue ruling 59-60)

The preceding article is a small excerpt taken from CDSPI's financial seminar series for dentists, entitled "Charting Your Financial Security." Financial consultant Peter Dennett will lead two seminars in eight cities across Canada this fall.

The new two-seminar format is designed to help dentists with their financial planning at two different stages of life and career. Seminar One is specifically geared to dentists in the early stages of financial planning and setting up a home and family. Seminar Two is for dentists seeking to improve their financial plans and protect their lifestyles into retirement.

Dentists can attend one or both seminars – each is packed full of practical information on topics such as: building wealth; stocks and bonds; investing in real estate; adding value to your practice; RSPs; and much more. Participants will learn how to ensure their financial well-being and devise a strategy that will take them into the future in confidence.

For the times and dates of seminars in your region, call CDSPI toll-free at: 1-800-561-9401 (Ext. 264) or in Metro Toronto at 296-9401 (Ext. 264).

DID YOU KNOW?

Optimists or Pessimists

Optimists see the good in a bad situation; **pessimists** see the bad in good situations.

Optimists feel they can control their destiny; **pessimists** believe they are the victims of circumstance.

Optimists say, "If at first you don't succeed, try, try again"; **pessimists** say, "I'd prefer to watch the game from the stands than to keep striking out all the time."

Optimists love to break through barriers; **pessimists** say, "Why don't breaks ever come my way?"

Optimists see defeats as temporary setbacks; **pessimists** see them as recurring events to be endured.

Optimists like to rub shoulders with positive-thinking people; **pessimists** prefer to hang around with cynics and complainers.

Optimists' cars carry bumber stickers that read: "Isn't life grand"; **pessimists** prefer, "Life's a drag — and then you die."

(Communication Briefings, Dec. 1991)

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at June 30, 1992	May 31, 1992
Bond & Mortgage Fund	96.56198	94.54347
Common Stock Fund	17.53775	17.76105
Money Market Fund	61.07537	60.75029
Balanced Fund	35.54831	35.55256

G.I.C. Fund Term	*Interest rates as at June 30, 1992	May 31, 1992
1yr	6.10%	6.85%
2yr	6.85%	7.60%
3yr	7.60%	8.15%
4yr	7.85%	8.35%
5yr	8.35%	9.10%

*(*rates subject to change without notice.)*

Total Assets (market value) of the Plan as of

June 30, 1992	May 31, 1992
$164,670,319.00	$163,981,543.40

For further information:

Write:

CDSPI
Retirement Services Dept.
Suite 710
100 Consilium Place
Scarborough, Ontario
M1H 3G8

or phone, toll free:

416-296-9401	Metro Toronto
1-800-561-9401	Service in English
	Extensions: 252, 253, 254
1-800-665-9401	Service in French
1-416-296-8920	Fax.

The Stern ERA Attachment

Exacting Retention Made Easy

Mr. H. J. (Hyo) Majer RDT

The use of attachments in free-end partials is a well-established procedure in most dental practices today. Unfortunately, the metal, male button that was commonly used in these attachments in the past often caused excessive wear in the fixed female component, grinding each time the patient occluded. This ongoing metal-to-metal wear resulted in an increasing loss of retention over time.

While adjustments could be made to the attachment's metal ring to partially compensate for this retention loss, they were both difficult to perform and imprecise. Eventually, a remake of the fixed restoration was often required. Alternative solutions, such as mobile clasps, which could damage healthy enamel, were not the answer in many instances. What was needed was a new concept in attachments.

Now, with the Stern ERA* attachment, a new standard of reliability, ease of fabrication and servicing, and patient satisfaction has been established for the attachments used in removable restorations. Unlike standard all-metal attachments, the ERA features a resilient, easily replaced, nylon male component in the prosthesis – a nylon male that causes virtually no wear on the female component. This male button snaps easily into a female eyelet on the abutment tooth, creating a cushioned ball and socket connection. The result: reliable, ongoing retention in crown and bridge, direct overdenture, or direct bonded retainers. In fact, this is now possible with any case where a resilient prosthesis is indicated to lower stress on the abutment tooth. Even in situations where ridge alignment or abutment location forces the attachments to diverge significantly, the ERA joint allows hinging around much of its radius, providing the perfect overall solution.

Retention Can Be Varied To Meet Individual Needs

The ERA's instantly replaceable, reinforced-nylon male components provide several levels of retention. They are color-coded (white-light, orange-moderate, blue-heavy, grey-very heavy) for easy identification, allowing the dental practitioner to select the appropriate degree of snap retention at the initial case placement and to vary that retention over time as required.

Less Abrasion Means Less Maintenance

While the average male component's life expectancy exceeds three years, over time it will wear, causing a reduction in retention. As normal wear occurs, an increasing amount of retention can be provided at chairside through a quick, easy replacement of the button with the next highest rating of male component – a procedure that takes all of 30 seconds.

Wide Variety of Applications

The Stern ERA is available in different formats for use with partial dentures, overdentures and implant-retained prostheses. In crown and bridge restorations, the ERA is compatible with a wide range of hard, precious and non-precious alloys. Case design is easy, as the female design is waxed directly to the abutment restoration pattern, allowing one-piece casting. The gingival offset on the female allows room for interdental papilla.

A "reduced vertical" version of the Stern ERA, the ERA-RV, is available for partial denture cases with limited vertical space. Appreciably shorter than the standard-size ERA males, the ERA-RV's reduced height allows an additional half millimetre of acrylic to be placed between the top of the male and the covering denture tooth, markedly increasing the strength of the denture base where the available vertical space is limited. The ERA-RV male button also features an indirect retention block, projecting from above the slot in the housing. When the appliance is fully inserted, this retention block is in direct contact with the upright of the female component, providing an auxiliary positive stop against the lifting of the distal extension saddles. The block does not interfere with the built-in resiliency of the ERA-RV, a factor that ensures hinge and vertical movement of the saddle toward the supporting ridge. ■

Fig 1: Stern ERA female attachment cast to distal of abutment crown.

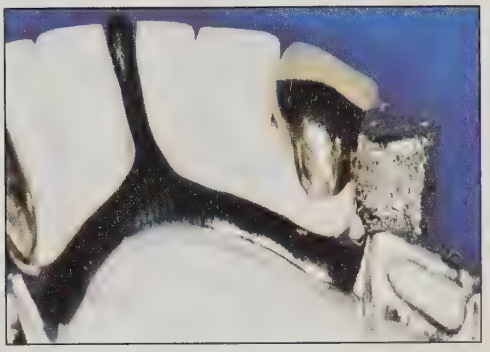


Fig 2: Cast metal framework fitted to attachment.

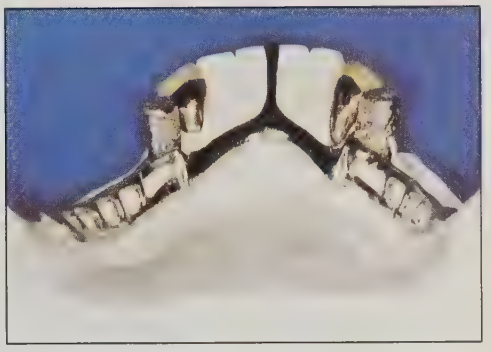


Fig 3: View of entire case.

Mr. H.J. (Hyo) Maier, RDT, is president of Aurum Ceramic/Classic Dental Laboratories Ltd.

*The Stern ERA attachment is a product of APM-Sterngold.

ONCE IN A WHILE AN IDEA COMES ALONG THAT'S SO POWERFUL, IT CHANGES THE WAY WE THINK

See us at booth No. 145 at the CDA Convention

NEW NON-NARCOTIC

TORADOL

10 mg TABLETS & 30 mg IM INJECTIONS

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

Toradol is a powerful new idea in the treatment of pain: a non-narcotic analgesic with narcotic-strength efficacy.

By class, Toradol belongs to the non-steroidal anti-inflammatory drug (NSAID) family. However, unlike conventional NSAIDs, it is a potent analgesic agent with minimal anti-inflammatory and antipyretic activity. And, it's the first peripherally-acting analgesic to be available in both IM injection and tablet formulations.[1,2]

One Toradol 30 mg IM injection has been proven to be as effective as morphine 12 mg IM and meperidine 100 mg IM.[3-9] And clinical studies have shown that one Toradol 10 mg tablet is more effective than acetaminophen 600 mg + codeine 60 mg (i.e., two tablets of acetaminophen + codeine #3).[10-12]

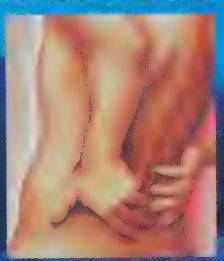
But, because Toradol is non-narcotic,[1] it has a more favourable tolerability profile than morphine, meperidine and acetaminophen-codeine combinations with less nausea, vomiting, drowsiness[10,11,13] and constipation.[1] What's more, Toradol has no narcotic addiction or abuse potential.[14]

Since Toradol is not a controlled substance,[2] there's no need to worry about narcotic control or security procedures. As well, Toradol has no narcotic prescribing restrictions.

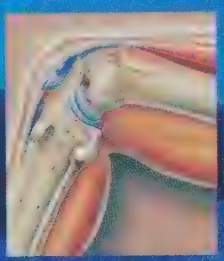
So, for the management of acute, mild to severe pain in your practice, think about Toradol IM and tablets. Narcotic efficacy without narcotic drawbacks.

PROVEN EFFECTIVE IN A WIDE RANGE OF POST-OPERATIVE AND OTHER ACUTE PAIN CONDITIONS

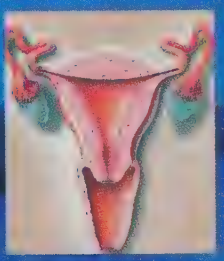
POST-OPERATIVE PAIN[3-8, 15]



LOW BACK PAIN & SCIATICA[16-18]



SPRAIN, STRAIN[12, 18-21] & FRACTURE PAIN[8]



GYNECOLOGICAL PAIN[3-8, 22,23]

POST-DENTAL EXTRACTION PAIN[10, 11]

NEW NON-NARCOTIC

TORADOL®

10mg TABLETS & 30mg IM INJECTIONS (KETOROLAC TROMETHAMINE)

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

Toll-free Toradol Information Hotline 1-800-561-5481

PAAB CCPP

Naturally, there's something in it for your patients.

When people started brushing with baking soda over 100 years ago, it was for its cleaning and deodorizing qualities.

Now Colgate has developed a new formula that combines these natural benefits with proven fluoride protection.

Colgate* Toothpaste With Baking Soda.

With its gentle abrasion, our new formula has proven effective against supragingival plaque. And because of its alkalinity, it also helps neutralize plaque acid.†

Recent comparison studies have shown that baking soda alone is at least as gentle on enamel and exposed dentin as other abrasives in the major toothpastes studied.†

What's more, Colgate ground the baking soda in its new toothpaste to pharmaceutical grade—considerably finer than the version used in the comparison test.

All this to ensure that our new toothpaste is a safe and effective way to clean and protect your patients' teeth. We've even given it a natural mint flavour, so there's no uncertainty about taste.

New Colgate Toothpaste With Baking Soda. Your patients will be glad to know there's something in it for them.

*TM Reg'd COLGATE-PALMOLIVE CANADA INC.

†References available on request.

See us at booths 410 and 412 at the CDA Convention

Getting Patients to Say Yes: Effective Case Presentations

Case presentation, treatment acceptance, patient consultation. Different practices may give different names to the same "animal," but that hasn't changed one basic common denominator. No matter what its called, dentists generally dread the thought of taking this beast out of its cage.

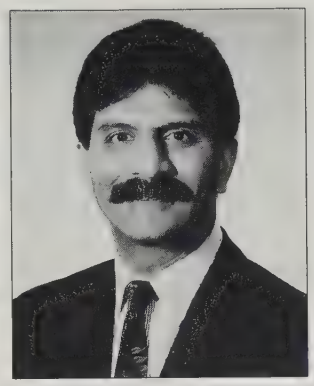
Why is it that dentists so loathe case presentations? After all, unless a practice's patients regularly accept the recommended treatment, sooner or later (and most likely sooner)it will perish. And yet, although dentists know how critical case presentations are, they often feel defeated by repeated rejections of their treatment recommendations. Rather than rising to the challenge, they allow this recurring scenario — which they feel almost powerless to control — to put them in a state of mental gridlock.

But you can gain some control over case acceptance. The bottom line is this: you need to educate your patients about their mouths and motivate them to achieve optimal oral health. You need to turn their dental needs into dental wants. True, the task of convincing your patients to invest their discretionary dollars in oral health care may not be easy, but it can be done.

A Team Effort

The first misconception about case presentations is that they are the dentist's sole responsibility. In fact, team participation is critical in motivating a patient to accept treatment. Whether it's the receptionist or the hygienist, every team member contributes to case acceptance. (If this isn't the status quo in your practice, you'd better consider some drastic restructuring.) The dentist may be responsible for articulating the treatment plan, but his team plays a vital supporting role in getting the patient to embrace it.

Building a solid relationship with your patients is the first step to winning case presentation acceptance. The relationship begins at the initial contact between the patient and your practice, and simply snowballs from there. A courteous telephone manner by the receptionist, a warm greeting from the front desk person, thorough explanations of any problems by the dentist, and oral health education by the hygiene department all go a long way toward developing rapport with patients. Stay on this track, and trust and confidence will soon follow. (With some patients, trust will begin on the first visit. For others, it will build over a long period. But in either case, the protocol should be the same.)



Imtiaz Manji B.Sc. President of ExperDent Consultants Inc.

Once you've demonstrated to your patients that their comfort and care are your foremost priorities, your next challenge is to establish the need for treatment. For example, if John Doe is embarrassed about an unsightly chipped front tooth, you would explain that the wonders of bonding could dramatically improve the appearance of this tooth. The need for the procedure will quickly become a want. And this principle applies whether the patient is motivated by pain relief, esthetics, function or health. A combination of active listening and asking the right questions will allow you to discover what motivates your patients, emotionally, to accept treatment.

Educating Patients

Keep in mind that the number-one reason for people not to visit the dentist, or to reject treatment when they do, is that they don't perceive a need. Here the dental team must play the role of educators. (The hygienist, who has the major responsibility for promoting optimal oral health, is an invaluable educator.) Patients will only become motivated to take action when they realize the importance of doing so.

Considering that over 80 per cent of learning or education is assimilated visually, it's no wonder that dental practices are embracing the use of visual aids in case presentations. Displaying the benefits of treatment, as well as the end results, can be all-powerful in influencing patients to accept your recommendations. The old adage, seeing is believing, certainly applies here.

Patients want to know how treatment will affect them — their health, function, finances and appearance. Video imaging is particularly useful for those patients who are motivated by appearance. For example, a whiter, brighter smile can be simulated for someone who is embarrassed by unsightly stains on their teeth. Before and after photographs of patients who have undergone similar treatment are also very effective. And an intraoral camera can demonstrate the need for anything from an amalgam restoration to major bridgework.

It's not enough just to educate your patients, however, you also need to include them in treatment discussions. Unfortunately, the traditional approach to case presentations has given little attention to communicating with the patient. The focus, rather than being on the patient, revolves around the needs and wants of the practice. If the dentist is busy doing dental work on another patient, he may neglect to provide the necessary education or sales communication to the new patient. Leaving the office with little information about his condition, it is no wonder that this patient cancels the first phase of treatment within a few days.

Many progressive practices schedule time in a consultation room for the dentist to offer treatment recommendations to patients – to assess their needs, wants, and concerns and to outline the benefits of the proposed treatment. The dentist does not enter into technospeak diatribes with patients who have little dental knowledge. Instead, the case presentation process is characterized by an offer of professional services and a frank, open exchange of views, opinions, perspectives and priorities. The idea here is simple: to allow the patient

to become an active and equal participant in the decision-making process with regards to his or her oral health.

Asking for a Commitment

Let's assume that you've outlined your treatment recommendations and that your patient is aware of the benefits and end results. Your mutual exchange has been positive and productive. Now what?

What you don't want to do is allow that patient – whom you've taken on an educational journey – to walk out of your office without letting you know if he or she plans to go ahead with treatment. But this is what many dentists do. Because they are uncomfortable about asking for a commitment to treatment, they shy away from taking this vital, concluding step in their case presentations.

If you're one of those dentists who avoids asking for a commitment, consider acting out case presentations with your staff. By practising, you'll become more comfortable with the various scenarios that could arise in your office. You'll be ready to answer your patients' concerns with well thought out responses rather than off the cuff replies. And you'll soon find that asking a patient whether there is any reason not to schedule an appointment and proceed with treatment becomes quite natural.

Undoubtedly, the job of explaining treatment recommendations and asking for a commitment belongs to the dentist and/or a case management staff member. What isn't the job of the dentist, though, is dealing with financial issues. These are best left for the case management manager, business manager or treatment coordinator to discuss with the patient. Once financial arrangements have been made, an appointment(s) can be booked.

A final note about insurance. Some practices complain that patients avoid committing to treatment because they aren't sure if it's covered by their insurance plans. This underscores the importance of ensuring that patients commit to treatment before they leave your office. The commitment is then based on a dental want and not on whether the treatment will be covered, a question that may take up to four weeks to resolve.

There will always be patients who defer or reject treatment. But by following the plan outlined above, you should see an increase in treatment acceptance. Even when patients won't jump on the treatment bandwagon immediately, all is not lost. It may just be a matter of time and increased trust before they do. An effective hygiene recall system will bring these patients back into the practice, giving your team a new opportunity to convert their dental needs into dental wants.

Summary

Getting patients to say yes to recommended treatment requires the dedication of each team member. It demands a commitment to educating patients and motivating them to turn their dental needs into dental wants, as well as providing financial options to make treatment affordable. When the dental team takes the time to nurture the case presentation process, the results can be dramatic. Patients embrace treatment and the practice provides it. It is nothing short of a win-win scenario. ■

Over 50 great reasons to get ABEL now!

Here's why the ABEL Dental Software System was rated Number 1 in an independent survey.

Great features

ABEL software provides advantages such as: • improved cash flow • single user or multi-user/multi-tasking systems • electronic claims • improved insurance claims accuracy • easy appointment scheduling • fast preparation of month-end statements • reduced accounts receivable ... and much more.

Over 50 ABEL people help to provide you with the best in practice automation.

Great support

A comprehensive support package comes with every ABEL Dental Software System. It includes installation, training, software updates and our outstanding toll-free telephone support.

Great service

Unlike others, ABEL continues to improve its software and service. When we say *"We'll be here when you need us,"* we don't take it lightly. Neither should you! Call now to contact your nearest ABEL representative.

IBM Business Partner
Authorized Industry Remarketer

See us at booth No. 521 at the CDA Convention

ABEL®
DENTAL SOFTWARE SYSTEMS

ABEL Computers Ltd.
3310 South Service Rd.
Burlington, Ont. L7N 3M6
Local: (416) 333-3200
Other Area Codes: 1-800-263-5104

Calgary 1992 • August 29 - September 2

CONVENTION UPDATE

A room full of exhibitors at your service!

There will be more than 200 booths at the 1992 CDA Annual Convention this month staffed with knowledgeable personnel willing to give you the information you need to get more bang for your buck when buying for your dental practice.

Exhibit staff will be on the floor to give you the answers you need not product pitches. These are tough times and companies recognize the need to have educated staff at their booths to tell you about their products and answer your questions. No more waiting on the end of a phone line to have your questions answered, now you will be able to do business 'face-to-face' and get the information you need immediately to make the right decisions.

It's not always easy to get your business accomplished amidst the noise and bustle of a busy trade show, however we are trying to provide you with an area that will assist you in slowing the pace while you evaluate the information you've gathered while treading the Exhibit Floor. This year's Exhibit Hall will feature a restaurant area for hungry buyers, and just a few steps beyond, we will offer delegates a 'quiet zone' designed to draw you away from the hustle and bustle of the Exhibit Floor and offer an atmosphere of comfort and relaxation – the perfect place to go to meet with your office staff to discuss your discoveries and determine the best buys for your practice.

It is important that you plan your visit to the Exhibit Hall before you arrive on site. Make the effort to do some homework and you'll find your time is well spent. Develop a list of the products and companies you want to see, then map out a route that will allow you to meet and discuss your needs with the suppliers who have the products you require and/or desire.

We suggest you make two visits to the Exhibit Hall. On your first visit, plan to browse. View the new products and equipment on display and ask questions. Then arrange to meet with your staff or purchasing officer to discuss your new discoveries. The second visit will be your buying visit. You will go to specific booths and order the products and equipment you need. Our exhibitors will be thrilled to meet and serve you, their valued customer.

Nick Misura, D.D.S.
Chairman, Exhibits
1992 CDA Convention Committee

On-site registration – working to get you in the door

For those wishing to participate in the limited attendance pre-convention program, there still may be an opportunity to get involved. We will have registration staff on site at the Palliser Hotel, where the pre-convention courses are being held. All you have to do is come early and register to participate.

On-site registration staff will also be ready to serve you when you arrive at the Roundup Centre. If you've registered for the convention and require tickets for some of the exciting social activities, hustle over to Advanced Registration and make arrangements to get in on the hoopla. Our convention staff will be thrilled to ensure you get the tickets you need to participate in social activities designed to give you a taste of the wild west.

Monday and Tuesday will be busy days at the Roundup Centre at Stampede Park where our Registration Desk will be in full operation from the time the doors open for a complimentary breakfast (our thanks to Aurum Ceramic/Classic for sponsoring these events) until the Exhibit Hall closes.

The Centre Hall will be a hive of activity as dental professionals meet with exhibitors to get the scoop on new dental products and technologies. Meanwhile, the lecture rooms will be filling appetites for new knowledge as a range of clinicians share their expertise with their audiences. And, CDA Convention Staff will be on hand at the registration area to answer your questions, verify your continuing education credits and give you the information you need to get the most out of this event.

If you've missed the pre-registration deadline, there's still plenty of time to get in on the action. Call CDA Conventions at 1-800-267-6354 or pop in at the Palliser Hotel on Saturday, August 29 or Sunday, August 30 to register. Look forward to seeing (and serving) you at the Convention!

Eugene Dalla Lana, D.D.S.
Chairman, Registration
1992 CDA Convention Committee

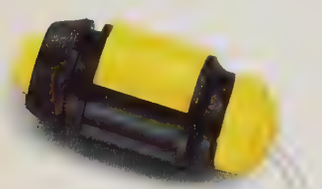
CDA - ADC
APRIL 28 - MAY 1
28 AVRIL - 1ER MAI

NEW! PHOTAC®-BOND

The First Light Cured Base In A Capsule.

ESPE PHOTAC®-BOND OFFERS YOU PROVEN[1-12] GLASS IONOMER PERFORMANCE WITH THE CONVENIENCE OF LIGHT CURING.

EASY TO USE



PHOTAC-BOND APLICAP®

PHOTAC-BOND can be conveniently expressed into the cavity, flows easily and offers adequate working time.

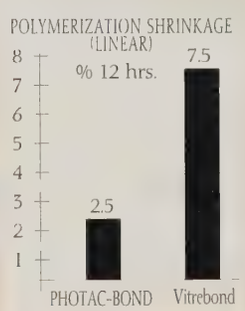
PHOTAC-BOND is dual cured. Visible light curing ensures a quick set, enabling the restoration to be completed with any restorative material.

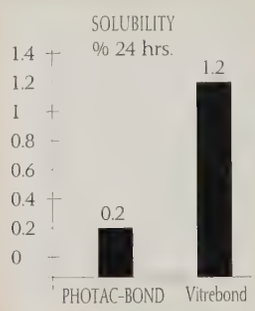
PHOTAC®-BOND is a true glass ionomer. Unlike other light cured bases, which report glass ionomer-like properties, PHOTAC-BOND shrinks significantly less and has a lower solubility - similar to a traditional glass ionomer.

PHOTAC-BOND is protective. By chemically bonding, releasing fluoride, insulating the pulp and exhibiting a similar coefficient of thermal expansion to the tooth structure, PHOTAC-BOND maintains a tight marginal seal and resists microleakage.

There is no need to dehydrate the tooth as PHOTAC-BOND is hydrophilic; it bonds best to a slightly moist surface and can be conveniently overlayed with amalgam or composite. The "unit of use" Aplicap delivery system is ideal for the asepsis oriented practice.

Order PHOTAC-BOND Intro with 50 Aplicaps, activator and applier or the refill through your authorized dealer. Aplicaps require the use of an APLICAP activator and applier.





In-house testing ESPE, Germany

1- 12 Full bibliography available upon request.

® ESPE, PHOTAC and APLICAP are registered trademarks of ESPE, GmBh, Germany. ©1992
Vitrebond is not a trademark of ESPE Premier.

ESPE-Premier Sales Co., Box 111, Norristown, PA 19404 • 1-800-344-8235
ESPE-Premier (Canada), Inc., 480 Hood Rd., Unit #3, Markham, Ontario, Canada L3R 9Z3 • 1-800-465-8455

ESPE-premier

See us at booth No. s 434 and 436 at the CDA Convention

The Ideal Bonding System

Ronald E Jordan, DDS, MSD
Makoto Suzuki, DDS, MS, DMDS

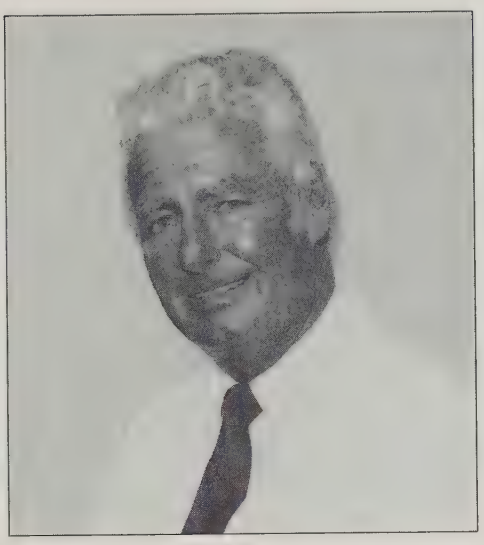
Irrespective of the composite material used in clinical restorative dentistry procedures, it is a well-recognized fact that bonding resins tremendously enhance the longevity and reliability of composite restorations. The bonding resin, which by its very nature is of low viscosity, thoroughly wets the surfaces of both the tooth structure and the restorative material, vastly improving the adaptation of one to the other, which results in a leakage-free marginal interface.

A wide variety of bonding materials are currently available, and many more will no doubt follow shortly, given today's highly-competitive market situation. Practitioners are therefore faced with an extremely confusing and frequently frustrating situation when making a differential choice of bonding material. The question is: 'How in the world do I choose the best bonding resin available in a market situation that is replete with controversy?'

Consider the following basic principles. First, it's important to choose one of the recently-introduced universal bonding systems. These materials bond not only to enamel, dentin and cementum, but also to composite, porcelain, and metal (including amalgam). This allows them to be used in a widely-diversified manner for all applications of clinical restorative dentistry.

The second and most important principle is to always ensure that only an ideal or close to ideal bonding system is differentially selected and used. Ten features characterize the ideal bonding material, namely:

1. High bond strength *in vitro* and *in vivo*
2. Total seal of dentin tubules
3. Bondability to wet surfaces
4. Biological compatibility
5. Self or dual cure
6. Low film thickness
7. Instant bond
8. Multi-surface bond
9. Clinically proven
10. A "gap" free bond with no microleakage



Ronald E. Jordan

Makoto Suzuki

High Bond Strength: In vitro and In vivo

The bond of resin to acid-etched enamel is a highly-reliable bond that has been clinically substantiated for almost 20 years. It is approximately 18 megapascals, or 200 kg/cm^2, or 3,000 pounds per square inch. It is reasonable to assume that dentin bonding systems of equal magnitude will be correspondingly effective.

The clinician is cautioned, however, against choosing a particular resin bonding system on the basis of high bond values alone, since published bond values are highly variable (depending on the researcher or corporation carrying out the tests). Some bond values are established using bovine or extracted natural teeth, but the most reliable bond values are probably attained when the material to be tested is placed in a living patient. In the latter case, the teeth are subsequently extracted and the bond values determined under standardized, carefully controlled conditions. This procedure, for obvious reasons, is most difficult to carry out.

It has also been shown that high bond values are not a foolproof predictor of clinical performance (Barkmeier and Cooley, 1991). High bond values alone, therefore, must never be used as the sole determinant for the clinical choice of a bonding material. Other parameters are at least as important.

Total Seal of Dentinal Tubules

Brannstrom's work has clearly demonstrated that dentinal pain is caused by altered fluid movement within the dentinal tubules. Any stimulus – thermal change, tactile (explorer) stimulation, acid or sweet foods, for example – results in altered dentinal fluid movement and subsequent pain. Bonding resins that totally seal and obturate the dentin tubules eliminate post-operative sensitivity very effectively. Indeed, the fastest and most reliable means of eliminating cervical or root sensitivity is to apply any one of the following bonding resins: Allbond 2, Tenure, Prisma Universal Bond 3, Scotchbond Multipurpose.

Bondability to Moist Surfaces

It is extremely difficult, if not impossible, to totally dry a dentinal surface because of the presence of fluid in the dentinal tubules. Accordingly, it appears reasonable to assume that so-called "wet bonding" materials, such as Tenure, Allbond 2 or Scotchbond Multipurpose, to mention only a few, may be associated with an inherent advan-

TABLE I
Various Dentin Bonding Systems Relative to the Ideal

	HBS	TS	BM	BC	SC/DC	LFT	IB	MB	CP	GFB
Allbond	>18MPa	yes	yes	yes	DC	yes	yes	yes	?	yes
Tenure	>18MPa	yes	yes	yes	SC	yes	yes	yes	yes	yes
Bayer 2000	>18MPa	yes	yes	yes	SC	yes	yes	yes	yes*	yes
Scotchbond 2	16-18MPa	?	no	yes	LC	no	yes	no	yes	yes
Scotchbond Multipurpose	>18MPa	yes	yes	yes	LC	yes	yes	yes	?	yes
Prisma Universal Bond 3	>18MPa	?	no	yes	LC	yes	yes	yes	yes**	yes

Abbreviations:

HBS:	High Bond Strength	CP:	Clinically Proven
TS:	Total Seal of Tubules	GFB:	Gap Free Bond
BM:	Bond to Moist Surfaces	DC:	Dual Cured
BC:	Biologically Compatible	SC:	Self Cured
SC/DC:	Self or Dual Cured	LC:	Light Cured
LFT:	Low Film Thickness	?:	Clinical Trials Forthcoming
IB:	Instant Bond	*	1 Year Retention 97%
MB:	Multi-surface Bond	**	1 Year Retention 97%

tage. Only clinical trials, however, can confirm or deny this supposition.

Biological Compatibility

Almost any material may be bonded to enamel without deleterious pulpal sequelae. Dentin bonding systems, on the other hand, must be biologically compatible and non-irritating. In addition to their role as dentin bonding systems, such materials may be used as pulpal protective materials.

Self Cure or Dual Cure

Although it is not an absolutely essential parameter, self- or dual-cure bonding resins may be used over a very wide range of indications, such as bonded prefabricated or cast posts, bonded crowns, bonded bridges and bonded inlays. This parameter is not necessarily of absolutely paramount importance, however. It has been shown that Prisma Universal Bond 3 (L.D. Caulk Co. data), a light-cured system, can be effectively used for bonded posts by simply applying the primer to the radicular dentin, followed by the use of a self-cured resin cement, such as Biomer, for post cementation.

Low Film Thickness

The ideal bonding system should have a film thickness of less than 20 microns so that it can be effectively used over a wide variety of clinical applications, such as bonded veneers, bonded porcelain or metal crowns, bonded posts, bonded inlays and bonded bridges.

Instant Bond

Polymerization contraction shrinkage occurs within seconds of the placement of a composite material. Bonding resins that instantly develop a high bond strength before polymerization contraction shrinkage occurs are therefore of obvious advantage over some of the older systems, which require up to 10 or 15 minutes to develop optimum bond strengths.

Multi-surface Bond

It is obviously advantageous to use a single bonding system that bonds equally well to enamel, dentin, cementum, porcelain, and metal (including semiprecious, nonprecious and precious metals). Of even more advantage would be a bonding system that also bonds to amalgam, thereby allowing bonded amalgam restorations.

Clinically Proven

Of all of the important parameters to consider in selecting the ideal dentin bonding system, the extent to which the system has been clinically proven is by far the most important. Success is measured, in the long run, by how well a system performs clinically in the living patient over prolonged time periods. This is also the most difficult parameter to demonstrate, as clinical trials are inherently both expensive and time consuming. Nevertheless, there can be no substitute for long-term clinical evaluation in determining the effectiveness of any restorative material. Accordingly, the most important questions a practitioner can pose to the sales agent of a dentin bonding resin manufacturer are: Who (what institution) is carrying out the clinical trials on this product, and may I see the six month, one year, two year and three year recall report(s), preferably in published form? No other parameter may be even remotely regarded as an acceptable substitute to the "clinically proven" parameter.

Gap-Free Bond with Little or No Microleakage

The ideal dentin bonding material must demonstrate a "gap-free" bond, preferably micromechanical, that clearly shows the absence of a contraction gap at the bonded interface. This indicates that the bond of the material to the dentin is sufficient to withstand the polymerization contraction of the subsequently-placed composite material. In addition, little if any microleakage should be evident using standardized microleakage procedures.

An eleventh parameter in the selection of an ideal dentin bonding system

might be the ease of placement and lack of technique sensitivity. However, no matter how complicated they might appear initially, all of the bonding systems described in this paper lend themselves to relative ease of placement after a little practise.

Table I demonstrates the extent to which various dentin bonding materials approach the "ideal."

Two commonly-asked questions in regards to dentin bonding systems are: what should be done with the smear layer, and should dentin be etched or non-etched? The answers to these questions relate specifically to the particular materials used. Some materials totally remove the smear layer, others only partially remove or modify it. Furthermore, some materials depend on dentin etching while others do not. The following materials do not totally remove the smear layer, but either partially remove or modify it: Scotchbond 2, Prisma Universal Bond 3.

The following materials totally remove the smear layer, and must be dentin (as well as enamel) etched: Allbond 2, Tenure, Bayer 2000, Scotchbond Multipurpose.

Can dentin be etched without causing negative pulpal sequelae? Most certainly. However, there are three conditions that must be met, namely: 1) the etching acid must be of low concentration (10 per cent phosphoric in Allbond 2, 2.5 per cent nitric in Tenure, and 10 per cent maleic in Scotchbond Multipurpose; 2) etching must be done in short time periods, i.e. 10-15 seconds; and, 3) the dentin tubules must be totally sealed.

It should be kept in mind that if a particular material is not mentioned in this paper, it does not mean that the material is deficient in any way. It simply means that the authors and their co-investigators are not carrying out clinical trials on the material. There is most definitely a limit to the number of materials that may be subjected to clinical trials at any one institution.

Dr. Ronald E. Jordan *is the dean of the faculty of dentistry, University of Manitoba.*

Dr. Makoto Suzuki *is the head of the department of restorative dentistry, University of Manitoba.*

MAY WE HAVE YOUR ATTENTION, PLEASE?

CDA ACCESS now offers ATTENTION GRABBERS! For a low additional cost, you can spruce up your classified notices with special eye-catching typography and art. Call Ola Murphy at (800) 661-5004 or (416) 278-6700 for information about this exclusive CDA ACCESS feature.

Here are some examples of CDA ACCESS ATTENTION GRABBERS! This feature is available only to Dental Professionals, at the following prices:

ALTERNATE BORDER	$12.50	SYMBOL	$25.95
SHADED	$15.95	SHADOW	$29.50
REVERSE	$19.95		

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Committed To Quality For The Dental Profession

REGULAR BURS

557

330

THE MOST POPULAR BURS IN THE WORLD FOR CAVITY PREPARATION

TRIMMING & FINISHING BURS

(12 BLADES)

7901
"NEEDLE"

7406
"EGG"

DEVELOPED BY BEAVERS DENTAL TO SHAPE TOOTH ANATOMY ON ALL RESTORATIONS

FINE FINISHING BURS

(30 BLADES)

9903
NEEDLE
LONG

9103
CONCAVE
SHAPE

USED TO PRODUCE FINAL FINISH ON ALL RESTORATIONS, MARGINS AND VENEERS

FINE CROSSCUT BURS

2057

1931

SMOOTH CUTTING NO"CHATTER" DESIGNED FOR THE REMOVAL OF GOLD, AMALGAM AND CROWNS IN PREPARATION FOR REPLACEMENTS

These are the most popular burs in each series
see your dealer for the entire range of sizes and shank types available

BEAVERS DENTAL DIVISION
SYBRON CANADA LTD

P.O. BAG 900,MORRISBURG,ONTARIO
K0C 1X0
PHONE 613-543-3791 FAX 613-543-2525

Perio and Practice Management: The Inextricable Link

Jenny Thomas, RDH, BA, M.Ed.

As dental professionals, most of us have been subjected to what I call the "dinner party syndrome." It's the tendency for one or more guests, when the word dentistry is mentioned, to initiate a lengthy narrative about their last visit to the dentist. The cost of dental care, and the fact that the dentist expects a reply when you've got your mouth full of instruments, or some such complaint, are cited as dentistry-specific annoyances.

The "d" word was mentioned at a recent dinner party I attended. Yet on this occasion, the resulting saga unfolded with a refreshing twist. It was lengthy, as expected, but the course it took was surprising. Our storyteller actually complimented her dental office. Complimented them on their thoroughness, their pleasant attitude, their organization and their expertise. Naturally, I was all ears.

As the narrative continued, the storyteller rejoiced over the recent improvement in her oral health. Unbridled praise for the dental team flowed freely, but this was only part of the equation. The storyteller radiated a sense of pride over her involvement in the positive results. The fact that she had made a commitment to the treatment plan, and had participated in seeing it through, was a source of great satisfaction.

The narrative eventually ended, but not without consequence. Two of the dinner party guests requested the name of the dentist who was the subject of such acclaim. Witnessing the wheels of the patient referral process turning was most exciting. My first thoughts were to jump up from the table and call the dentist in question. To let him know that his practice's hard work and dedication were paying dividends, that a sincere, enthusiastic missionary had been cultivated by his office and was now spreading the good word.

I was interested in discovering some of the factors that had influenced this patient's thinking. As it turned out, her favorable impression had been largely

Jenny Thomas

influenced by the thoroughness of the initial examination, which included an in-depth periodontal assessment (something she had not experienced before). The explanation of her gingival condition was clear, enabling her to really comprehend the process of the disease as well as the role she could play in preventing further deterioration.

She acknowledged that other dental professionals had tried to do the same thing, but they had somehow been unable to get the message across or move her to action. And because the severity of her condition was never adequately communicated – in fact these other practices had tended to skirt around the issue – the patient never took it seriously.

The new office's emphasis on perio diagnosis and its consequent treatment recommendations were a welcome contrast. These factors gave the woman confidence in the dental team. Another influencing factor was her feeling that she had control of the situation. She was not pushed or rushed into a decision. As well, she was impressed by the intensity of the treatment and the fact that she could actually feel a difference, both during and after it. The perio treatment was markedly different from the "cleaning" she had received for years.

This patient welcomed the regular monitoring of her condition. After expending both time and money to resolve it, she was loathe to allow it to relapse. She was pleased to be maintaining healthy tissue as opposed to diseased tissue. And she was also looking forward to the possibility of assuming more of the responsibility herself, instead of being so dependent on the technical skills of the professional.

After witnessing this scenario, I am more convinced than ever of the important role a good perio program can play in establishing the reputation of a dental office. All the factors cited by the storyteller, from thorough assessment to clear explanations, have been recognized as key influences on patient motivation.

The dividends of effective diagnosis, cooperative treatment planning and confidence in the practitioner are heightened patient awareness and case acceptance. And the feeling of control that is given to the patient leads to increased self-responsibility in preventing future dental problems.

There are other practice management spin-offs that go hand in hand with the increase in this particular patient's dental health commitment. Her degree of motivation and her successful attainment of periodontal health will contribute to raising the job satisfaction of dental professionals, as both results correspond to the profession's expressed goals. Furthermore, this individual is highly unlikely to be a no show, or to cancel her appointment at the last minute, thus reducing the stress of the hard-working scheduling team.

Multiply this one patient by 500, and imagine how much easier it would be to maintain your current patient base, and how the practice management strategies you now employ could be reduced. Then multiply that 500 by two, and imagine the number of new patient referrals your practice would enjoy. Most people ask their friends for recommendations when it comes to changing den-

Take Advantage of our Implant Experience . . .

- optimal prosthetic results in all your implant-based restorations
- information on latest advances in prosthetic design
- convenient access to BRÅNEMARK SYSTEM® prosthetic components

Brånemark System®

Authorized BRÅNEMARK SYSTEM® Dental Laboratories

. . . an invaluable part of your implant team

Aurum Ceramic Dental Laboratories Ltd.
Vancouver, British Columbia
1-800-663-1721

Aurum Ceramic Dental Laboratories Ltd.
Victoria, British Columbia
(604) 595-2314

Aurum Ceramic Dental Laboratories Ltd.
Calgary, Alberta
1-800-661-1169

Aurum Ceramic Dental Laboratories Alberta Ltd.
Edmonton, Alberta
(403) 423-1904

Aurum Ceramic Dental Laboratories (Sask) Ltd.
Saskatoon, Saskatchewan
(306) 665-8815

Canadian Associated Laboratories - St. John's
St. John's, Newfoundland
(709) 726-7686

Central Dental Laboratories (Barrie) Limited
Barrie, Ontario
1-800-461-7559

Classic Dental Laboratories Ltd.
Ottawa, Ontario
1-800-267-7040

De Luca Dental Laboratories
Willowdale, Ontario
1-800-268-6657

E. J. Pow Laboratories Inc.
Woodstock, Ontario
(519) 539-2065

Hub Dental Lab Ltd.
Moncton, New Brunswick
(506) 857-0465

Laboratoire Dentachrome Inc.
Quebec, Quebec
(418) 626-8888

Laboratoire Dentaire M.J. Inc.
Chicoutimi, Quebec
(418) 545-4155

Laboratoire Dentaire Morisset Inc.
Quebec, Quebec
(418) 529-9219

Laboratoire Dentec Inc.
Charlesbourg, Quebec
(416) 628-5039

Lafond & Marston Inc.
Outremont, Quebec
(514) 272-1158

Lafond, Desjardins et Associes Inc.
Laval, Quebec
(514) 669-9221

Le Groupe Dent-Esthérium
Ville St. Laurent, Quebec
(514) 744-4442

Lindberg & Homburger Dental Laboratories Ltd.
Toronto, Ontario
1-800-387-0092

Microdent Laboratories Ltd.
Woodbridge, Ontario
1-800-267-4292

Pro-Art Dental Laboratory Limited
Toronto, Ontario
1-800-268-6771

Pro-Dent Laboratory Ltd.
Halifax, Nova Scotia
(902) 422-8531

R. A. Baillie Oral Ceramiques Inc.
Ville St. Laurent, Quebec
(514) 748-7619

Rotsaert Dental Laboratory
Hamilton, Ontario
(416) 527-1422

Shaw Group
Toronto, Ontario
(416) 977-0700

We have the knowledge, training and experience!

BRÅNEMARK SYSTEM® *is a registered trademark of Nobelpharma AB.*

See us at booths No.'s 230 and 232 at the CDA Convention

tists. And it's obvious who this dinner party guest, one very satisfied customer, would be recommending. She knows that she has gained improved dental health because she can feel it and see it. She has no hesitation about discussing this improvement with her friends, and while doing so, whether she recognizes it or not, she is selling the practice.

A good perio program is a sign of a well-organized practice. It demonstrates to patients that you are taking the time to learn about the specific conditions of their mouths, which, in turn, instills trust and confidence in your treatment recommendations. A good perio program, therefore, is not only fundamental to good oral health, it is fundamental to good practice management.

The following questionnaire will help you to test your office and its perio program. Circle the correct response. ■

Ms. Thomas *works as a dental hygienist in Ottawa, Ontario. She is on contract to the Ottawa/Carleton Health Department, and provides consulting services to private practices across Canada.*

Questionnaire

1. Do you believe that you have a perio program in your office?
   a) yes
   b) sometimes
   c) no

2. Do you have written goals for the perio program?
   a) yes
   b) sometimes
   c) no

Assessment

3. Do you or your hygienist spend time doing an in-depth, full-mouth perio assessment as part of the new patient examination and on "recall" patients who require it?
   a) yes
   b) sometimes
   c) no

4. Are the criteria measured in this assessment used to form a perio diagnosis?
   a) yes
   b) sometimes
   c) no

Treatment Planning

5. Is the perio diagnosis used to form a definitive perio treatment plan?
   a) yes
   b) sometimes
   c) no

Implementation

6. Does your office: a) understand the differences between initial perio therapy, three-month maintenance and regular scaling and prophy, and: b) implement them?

Question A
   a) yes
   b) sometimes
   c) no

Question B
   a) yes
   b) sometimes
   c) no

Evaluation

7. Do you and your hygienists look for specific perio criteria during evaluation appointments?
   a) yes
   b) sometimes
   c) no

8. Do you make specific perio treatment decisions as a result of these evaluations?
   a) yes
   b) sometimes
   c) no

9. Do you feel confident about knowing when to refer a patient to a periodontist?
   a) yes
   b) sometimes
   c) no

10. Do you feel confident when you refer a patient to a periodontist that he or she will return to your practice?
   a) yes
   b) sometimes
   c) no

Quality Assurance

11. Are the diagnosis and treatment plan both communicated to the patient?
   a) yes
   b) sometimes
   c) no

12. Is the patient given complete control over his or her treatment decisions?
   a) yes
   b) sometimes
   c) no

13. Do the staff have access to clear visual aids that they use on a regular basis?
   a) yes
   b) sometimes
   c) no

14. Do the verbal skills of the team promote treatment acceptance/behavior change?
   a) yes
   b) sometimes
   c) no

15. Are you really satisfied with the periodontal health of your patients?
   a) yes
   b) sometimes
   c) no

16. After completing this questionnaire, do you still feel confident that you have an effective perio program in your practice?
   a) yes
   b) sometimes
   c) no

Rate Your Practice

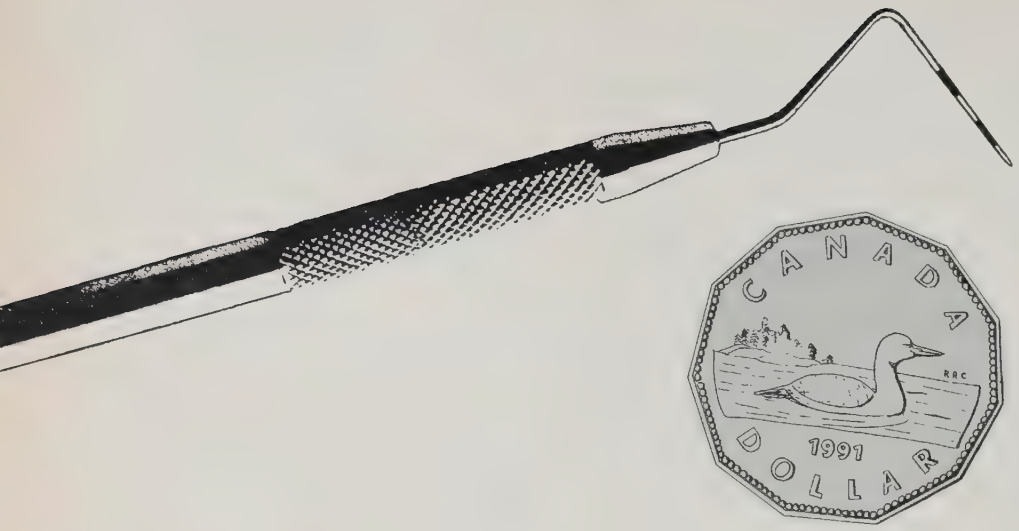
Give yourself 10 points for each yes response, five for each sometimes, and 0 for each no.

Results

140-170, excellent

100-139, some good periodontal features

0-99, perio program needs work.



You've mastered one, we'll help you handle the other.

You've mastered the tools of your profession, but without an understanding of the tools of finance the success of your practice can be placed in grave danger.

In today's economic and social climate, the Business of Dentistry is as important as your formal graduate training. In fact, a business mistake today in either your professional or personal world may have a devastating effect far into the future.

Consequently, business jargon such as R.O.I. (Return on Investment), Net Profit and Opportunity Costs of Money are now becoming part of the professional's vocabulary.

We at Healthgroup Financial are in the business of making sure you don't make a mistake by providing expert advice and financial products to satisfy both your personal and professional needs.

If you are considering adding new equipment, expanding your present facilities, building or purchasing a building, selling all or part of your practice, buying or setting up a practice, retiring or associating, you owe it to yourself to talk to the professionals who care about your future.

HEALTHGROUP
FINANCIAL

A MEMBER OF THE CONFEDERATION LIFE GROUP OF COMPANIES

390 Brant St. Burlington, Ont.
L7N 3G9 1-800-263-9624

Vancouver.....(604) 669-8877
Calgary .....(403) 265-5100
Edmonton .....(403) 421-7526
Winnipeg.....(204) 453-1555
Montreal.....(514) 499-0292
Halifax.....(902) 466-5335

See us at booth No. 430 at the CDA Convention

Working Smarter Not Harder: Maximizing your team's performance

Ms. Risa Pollack

For many business owners, realizing an increase in productivity without increasing stress is a long sought-after goal. In dentistry, our goal is to deliver the highest quality of care to the greatest number of patients in the least amount of time for a reasonable profit. To adopt this philosophy, one needs to develop a plan that involves a synergistic approach, combining the efforts of the entire dental team.

Surveys confirm that most patients cannot evaluate the quality of treatment they receive in a technical sense. Instead, they tend to judge their dental experience by how long they had to wait in the reception area or sit in the chair during treatment, and by their level of discomfort. Therefore, a practice that offers both efficiency and maximum comfort can increase it's chances of retaining patients and gaining referrals.

With today's technology, pain is controllable. Time control, however, seems to be a never-ending challenge. Historically, we've been led to believe that a minor adjustment to the daily schedule can accelerate the rate at which we generate revenue. Efficiency experts know otherwise. They understand that time is an intangible asset, one that is extremely difficult to monitor and control.

Adjustments to the schedule can increase production on paper, but they provide nothing more than unrealistic expectations when the team lacks the tools to bring these new demands to fruition.

To adequately determine the current output potential of a practice, the time and motion, or intake, needed to complete each type of dental procedure must be consistently monitored. Once the output potential is ascertained, the practice's current productivity can be analyzed and the necessary scheduling adjustments adopted.

The following criteria indicate a need to analyze practice productivity:

1. Operating team uses more or less time than the time allotted for a particular procedure.

Risa Pollack

2. Patients or staff complain about the amount of time used.
3. Doctor or staff appear irritable and stressed.
4. Appointment secretary is blamed for improper scheduling.
5. Team is unable to reach goal.
6. The doctor is needed in several places at the same time.

An output potential analysis can be performed in many different ways. One of the most useful and simplest methods is to actually time your procedures. Over the years, we have repeatedly timed our client's procedures to see if the time the appointment secretary has allotted for a given treatment is consistent with the amount of time actually used. More often than not, we find that the allotted time and the required time are quite different, reflecting a need to modify the practice's scheduling procedures.

For this type of analysis, we generally ask the chairside assistants or appointment secretaries to spend a day monitoring true time. First, they keep track of the patients' arrival time and the times when they're seated and dismissed. Next, these numbers are compared with the actual length of time scheduled for each appointment. This procedure alone can substantially improve patient flow by identifying the necessary alterations to the scheduling and practice procedures.

Another method, and probably the most dramatic one, involves the use of videotape. Videotaping patient appointments can be extremely helpful in pinpointing practice inefficiencies. Playing the tape back gives the dental team a third eye, allowing them to look at the practice from the outside in. Watching can be very different than doing.

Our consultants have been extremely successful in promoting change within a practice when they use videotape as a discovery method during training sessions. The tape can reveal awkward positioning and excessive body movements. It also provides a clearer picture of the impact an incomplete tray setup or a change in procedure can have on the schedule. Typically, when these problems arise, the assistant must exit the operatory, leaving the doctor irritated, the patient more anxious and the schedule more vulnerable.

There are other factors to consider when analyzing the tape, however. For example, how many times did the doctor leave a patient to attend to patients in other treatment rooms, or to grab a quick phone call that may not have been all that quick after all? Did it affect the patient, who no doubt thought that he (or she) was holding a reserved-seat ticket? How much time did you lose? How many other patients felt the effects?

Did you notice anyone performing tasks that might be considered low priority or of little value to the entire team. Poorly-planned projects and poor task assignment can have a dramatic effect on your team's morale, attitude and overall long-term commitment.

Team Positioning

One goal in time management is to promote efficient work styles. Efficiency cannot be achieved without studying the ergonomics of the work environment in order to eliminate unnecessary

movements – and maximize access, visibility and comfort.

Ideally, while performing a dental procedure, the care giver's muscles should be in a relaxed, well-balanced and comfortable position, with the exception of those muscles actually doing the task. Considering orthopedic and physiological conditions, the assistant is best positioned parallel to the patient, with her right hip adjacent to the patient's left shoulder. This position provides improved access and visibility to the treatment area. It also brings the instruments and materials to be prepared and transferred closer to the dentist.

Viewing the patient's head like a clock face, the dentist is best positioned at an 11:00 position, with the headrest lowered onto his or her lap. Having the patient's head resting at this angle dramatically improves the dentist's access to the treatment site.

For maximum back support, the back rest of the stool should provide support in the lumbar region, the most vulnerable portion of the back. The dental assistant should be seated approximately four to six inches higher than the dentist's eye level, so that she (or he) can see over the dentist's hands into the treatment area without leaning over the patient.

When treating the maxillary arch, recline the patient into a sub-supine position. Avoid leaning or stretching over the patient's head. Try adjusting their head side to side, or bringing their chin up or down, rather than adjusting your position.

By minimizing your movements, you can expect to expedite care and reduce the physical stress often associated with dental procedures. Additionally, when the treatment sites are more accessible, the soft tissue areas can be handled more delicately.

Equipment

Flexible rear-delivery, dual-function carts can offer additional support by providing both the dentist and dental assistant easy access to instruments and equipment.

The carts serve as an excellent support work surface when positioned directly over the assistant's lap. Rear delivery may also prevent or reduce patient anxiety, by providing an area to store equipment and instruments out of the patient's view. Furthermore, dual-function carts store contaminated materials in one compact area, simplifying and expediting decontamination procedures, one of our greatest time management challenges.

Another time saver involves the use of barrier controls. Barrier controls are impervious materials used to cover commonly contacted surfaces. This concept can dramatically reduce the amount of time it takes to decontaminate treatment areas by eliminating the need to preclean, disinfect, or wait for the recommended 10 minutes of contact time to elapse before reuse.

Anticipation

Being prepared is a very important factor in the success of time management initiatives. Knowing what's needed for each procedure is a must. More importantly, the team's ability to anticipate the dentist's needs, as well as how to handle an alteration in treatment, is the true test for any well managed office. This is where the challenge of time management and teamwork must fit together.

Considering that an assistant is hired to be the dentist's second set of hands, these team members must think alike. Movements must be choreographed in a smooth and efficient manner. An effective leader will take the time to share his or her philosophy and rationale regarding dental procedures with the assistant.

CDSPI PRESENTS

"CHARTING YOUR FUTURE FINANCIAL SECURITY"

Two new seminars to help dentists reach their goals at two stages of life and career

Revised and expanded from previous years Retirement Planning Seminars, the new format is tailored to meet the financial planning needs of dentists at two stages of life and career.

SEMINAR ONE

For dentists who are in the early stages of financial planning and setting up a home and family. Topics include:

- *Building wealth*
- *Adding value to your practice*
- *Buying a home*
- *Selection of stocks and bonds*
- *Funding your children's education*

Comments from past participants:

"Packed full of useful info for the DDS and his family."
Montréal

"After attending the original seminar two years ago I have implemented several points and now feel nearer to my aims and financial goals"
Toronto

"Excellent presentation. First class seminar."
Vancouver

"Seminar topics were very, very relevant and can be 'used in the trenches...'"
Toronto

"Highest rating!"
Québec City

SEMINAR TWO

For dentist's who have already done some financial planning and are seeking to improve on it, as well as protect their lifestyle into retirement. Topics include:

- *Investment strategies*
- *Estate planning*
- *Valuing and selling your dental practice*
- *Living on your RSP*

COST OF EACH SEMINAR

$390 per dentist (plus $27.30 GST) if a participant in CDIP or the CDA RSP. **$425** per dentist (plus $29.75 GST) for all others. Special savings to attend both seminars (call for details). Spouse attends free if registered — includes lunch, refreshments and workbook.

Seminar dates and locations

Sept. 11-12	London, Ontario
Sept. 18-19	Moncton, New Brunswick
Sept. 25-26	Montréal, Québec
Oct. 2-3	Vancouver, B.C.
Oct. 16-17	Kingston, Ontario
Oct. 23-24	Calgary, Alberta
Oct. 30-31	Toronto, Ontario
Nov. 8-9	Toronto, Ontario
Nov. 13-14	Edmonton, Alberta

Call Pat McNab, Seminar Co-ordinator today to register or get more information.

CDSPI

1-800-561-9401
(Outside Toronto)
416-296-9401
(Metro Toronto)
416-296-8920
(Fax)

NOTE: Seminars are limited to 60 participants (including spouse), so please register early to avoid disappointment.

Topics such as how to best work together, what determines a change in treatment and how to switch gears during that change are all part of this training. One cannot expect others to be mind readers, particularly when they don't speak the same language, or for that matter, when they don't speak at all.

As you begin to fine tune your techniques, start by coaching the team on the importance of developing a gentle, efficient and caring touch. Remember, the worst possible case scenarios are when the patient experiences rough handling during a rushed appointment, or an appointment where they thought you were awkward or inept, or took entirely too long to treat them.

Efficiency should not suggest a factory assembly line. Rushed appointments can provoke patients to decline proposed treatment or even to refuse to pay for completed treatment. Conversely, patients who wait too long in the reception area might start their own time clock. Remember what it's like to wait for anything in life, particularly something that might be viewed as an anxiety-provoking experience. A minute can feel like an hour, and an hour like a day. Hence, your effort to save time is nothing more than a "bad debt" owed to the patient. Empathize with your patients. Admit a scheduling interruption or problem. They'll appreciate your honesty and you'll enjoy a less stressful day.

Reinforcement

Before dismissing your patients, let them see, feel and experience the difference. Take the time to share your enthusiasm about the results you've achieved. Our research shows that team members are more productive when they believe in themselves and can authentically get excited about their work. Reinforcing that vision to patients as well as to other team members fuels motivation and reinforces "positive self expectancy." The dentist must also back up what he (or she) sees with positive encouragement in an effort to empower the team to excel beyond mediocrity.

Ingredients for Success

Success is no longer predicted by the ability to practise dentistry, but rather by the team's ability to work together. When the team members truly believe in their technical ability and share congruent values, they can maximize their performance and relate to their patients with confidence and authenticity.

Each practice needs to begin with an action plan. Priorities must be verified and clarified from the word go. Leaders must take the time to demonstrate the how to's before delegating tasks, as well as giving other team members plenty of time to practise their assigned role.

When the leader has provided a mutually beneficial vision, each team member can accept the practice goal as his or her own and become active in the practice's marketing strategy. Be open to sharing information regarding the health of the practice, such as production, collection and overhead expenses.

Lastly, the leader's ability to communicate and honor a reward system based on performance will govern the team's output potential. Working smarter does not have to mean working harder. It is simply a means of providing your staff with information and tools within an environment that supports congruent values for maximum team performance. ■

Risa Pollack *is the editor of ADA's Dental Teamwork and the president of the Academy of Dental Management Consultants. She is also the founder and president of Teamwork Concepts, a California-based management consulting firm.*

What
wears like a real tooth,
looks like a real tooth,
and destined to become
part of a real tooth?

CHARISMA
Universal Composite

It's time
for a new era
in
restorative dentistry.

For your 30 day TRIAL call :

WRIGHT DENTAL CANADA
Toronto 883-1072
1-800-268-3863

See us at booth No. 511 at the CDA Convention

NOTICE

To

Dental Profession and Dental Supply Companies

Valudent Inc. appreciates the patronage of its Candian dental supply dealers and encourages such dealers to continue to support Canada's exclusive Stabilick and Stabident distributor. Sales of Stabident and Stabilick products in Canada by persons or companies other than Valudent Inc.are not authorized by either Fairfax Dental Limited or Valudent Inc.

Valudent Inc. appreciates the patronage of its Canadian dental supply dealers and encourages such dealers to continue to support Canada's exclusive Stabilok and Stabident distributor. Sales of Stabident and Stabilok products in Canada by persons or companies other than Valudent Inc. are not authorized by either Fairfax Dental Limited or Valudent Inc.

Valudent Inc. will not honor any warranty claims based on the sales of Stabilok and Stabident products by unauthorized dealers.

Only Exan could offer a feature loaded Dental Management Program for $4988.00!

Introducing...

PRO-DENT

DENTAL MANAGEMENT PROGRAM

Includes all the features you are looking for:

- New, easy to use programs
- User friendly windows
- EDI
- DOS compatible
- Runs on 386 or 486 computers
- Includes full training to get you up and running quickly
- 60 day money back satisfaction guarantee

For further information talk to your Exan dealer representative
or call in Toronto (416) 470-9191
or Vancouver (604) 293-1661

EXAN

See us at booths No. 122 and No. 221 at the CDA Convention

Aptitude + Attitude = Success

Dick Barnes, B.Sc., DMD

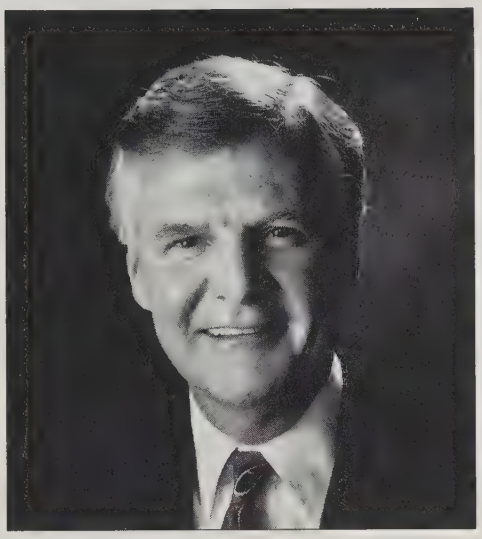
Aptitude is not the all important quality when it comes to being a good dentist. Without the right *attitude* toward our responsibilities, we will never have the opportunity to show our patients what great dentists we really are.

We must develop the attitude that if our patients need dental work, it is our duty to see that they have it done. In order to accomplish this, we must be confident that we are acting in the patients' best interests, as the professional overseer of their dental health.

Consider this: If a patient came into a cardiologist's office and the doctor discovered a malfunctioning valve, it would be his or her professional responsibility to convince the patient of the need for surgery. In the same way, it is our responsibility to convey to our patients the need to maintain their dental health. They must abandon the idea that dental health is merely a luxury, and we are responsible for ensuring that they do so.

Patients who neglect their teeth today will almost certainly experience serious dental problems in the future. Also, these patients run the risk of experiencing daily discomfort and diminished self-confidence. You are a highly-trained and skilled professional. Your talent and service, along with that of your colleagues, are responsible for providing a higher quality of life for millions of people. In your own way, you must help to raise your patients' awareness of the importance of oral health. You are a public servant, really, a fact that is reflected in the affordable services you provide to your community – sometimes at a loss.

Yet, when we look around the dental profession today, we still find an abundance of unhappiness and insecurity. Dentists in Canada and the United States typically experience more stress-related problems than their counterparts in most other occupations. Our average operating costs soar annually, as does our bankruptcy rate. But until we individually raise the opinion of our profession in our own eyes, and upgrade our own self-image, we will not change this potential nightmare.



Dick Barnes

I do not mean that you should build your self-image to the point of conceit. (According to Zig Ziglar, conceit "is a weird disease that makes everybody sick except for the person who has it.") This is not what we are reaching for. Instead, I want you to unfetter your chains of self doubt, emotional problems and other generally unproductive psychological baggage. The way you see yourself is glaringly obvious to others. If you allow yourself to establish a negative or even a passive self-image, this is how your patients will see you, and they will view your abilities in that light. If patients don't have confidence in you, they won't buy dental services from you. It's that simple.

Aptitude + Attitude = Success

You might be the world's greatest dentist, but unless you believe in your ability to convince patients of their dental needs you will not get the opportunity to prove just how talented you really are. Many dentists say that they don't have trouble when it comes to getting a patient to accept a treatment plan. However, many dentists dish out the plan piecemeal, by tackling the right quadrant this year and the left quadrant next year, and so on. It's a harder sell when the entire plan of treatment is presented at once and the fee runs into several thousand dollars. A winning attitude is necessary for success.

Michael Jordan, the all-star professional basketball player and leader of the world champion Chicago Bulls, has such an attitude. He doesn't harbor vague hopes of victory, he plans for it. From the moment he steps on the court for the first game of the season, he knows his team will win. He has a winning attitude. But he has also prepared himself to win, both physically and mentally, taking full advantage of his ability. He actually leads his team to victory.

As dentists, we should follow Michael Jordan's example. We must plan to win when we present proposed treatment plans to our patients, and we must be assured of our competency. Our years in dental school have given us the expertise, but we must couple our skill with a winning mental attitude in order to convince our patients of the need for treatment. We must strive for excellence. Don't be satisfied with mediocrity in a world that has an overabundance of it. For example, if you see yourself as a "drill, fill and bill 'em dentist," then that's what you will become. If you see yourself as being shy, and afraid to discuss a diagnosis or fee, you will seldom persuade a patient to accept the treatment he or she needs.

Behavioral scientists call this avoidance behavior. It is simply an excuse to avoid expending the effort required to correct or change the situation. But just as we learned dentistry, we can learn almost anything if we are willing to invest the time and effort. Competency in any one area is not inborn, it is acquired. Your greatest enemy can be your memory. It can remind you of your perceived ineptness, faults and imperfections. These feelings can be reinforced with thoughts like, "I don't like to talk about money," or, "I'm just not a salesman." We must dispense with these kinds of thoughts if we are going to lay the groundwork for effective communication skills.

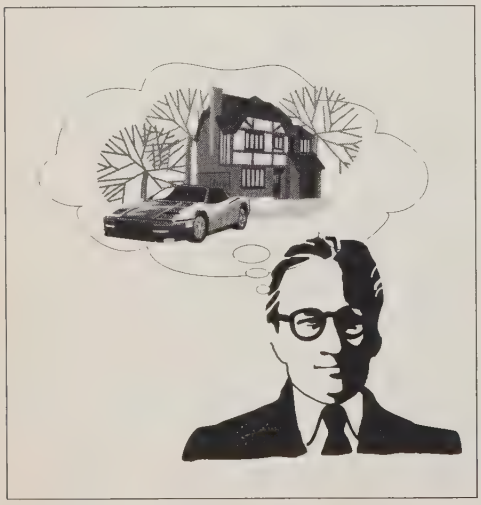
To elicit the proper response from our patients, a positive and open manner must be used. You can never expect a patient to lead a conversation. Since you are the specialist, you have the first move. Your imagination is a potential gold mine. It is up to you to put it to use.

You have to imagine yourself in a position of accomplishment before you can achieve it. Draw a mental picture of what you consider the good life to be – a thriving practice, a happy home life and glowing good health, perhaps. Why shouldn't this life be yours? You have struggled through dental school and are working hard to establish or maintain a practice. You deserve the rewards that success will reap. But it is up to you to gain control of yourself and determine the direction of your life. Take a hard look at your assets, take an inventory of your positive qualities and firmly establish a positive self-image. Embrace a healthy mental attitude, and work on those areas in which you feel inferior. Above all, learn to accept yourself, and to enjoy life and dentistry to the fullest.

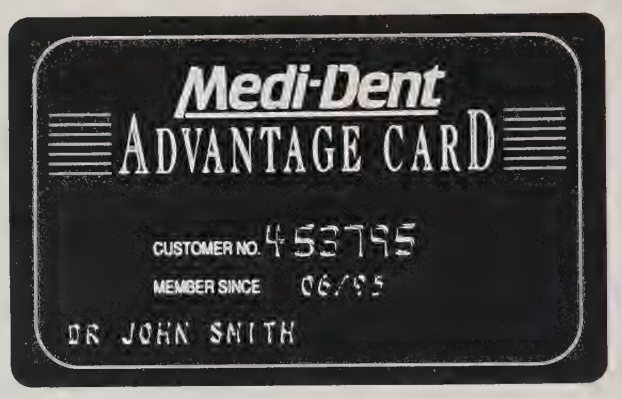
To propel yourself into deciding what sort of life you really want, think of an imaginary meeting between the "you" of today and the "you" of five years hence. You will eventually have to face that person and the inevitable question: What have you done during the last five years?

If you are like most people, you will answer: "I've been so busy – I'm up at six in the morning and running straight through until I drop into bed at night. I had so many ideas, but I just didn't have any time." To avoid this trap, you must decide to be the person that you want to be in five years, to grasp the life you desire. ■

Dr. Dick Barnes, *a noted lecturer in the United States, Canada, Australia and Europe, is the president of Arrowhead Management International.*



The Only Advantage You Need



The Medi-Dent Advantage Card sets you apart as a member of an elite group. Medi-Dent Advantage Card members have access to a pre-approved line of credit for the purchase of equipment, furnishings, leaseholds etc. in a quick, simple and easy to use process. Contact your Medi-Dent representative for full details; or if you wish please just mail or fax us back this ad and we will be happy to show you how to get the only advantage you need.

About you so we can get in touch:

Name: _____

Address: _____

_____

Telephone: _____ Fax: _____

Medi-Dent Service
5050 South Service Road,
Burlington, Ontario, L7R 4C8
(416) 335-7555 Fax: (416) 335-7590
Attn. Sharon Ralph

YOU CAN ALSO SEE US AT THE
92 C.D.A. SHOW IN CALGARY,
AUGUST 31 - SEPT 1,
BOOTH NO. 510-512

Medi-Dent
A division of Commcorp Financial Services Inc.

Personalized Lease Financing
And Financial Services

See us at booths 510 and 512 at the CDA Convention

Ash Temple LIMITED

DENTAL UPDATE

ASH TEMPLE LIMITED DENTAL SUPPLIES AND EQUIPMENT OFFICES COAST TO COAST

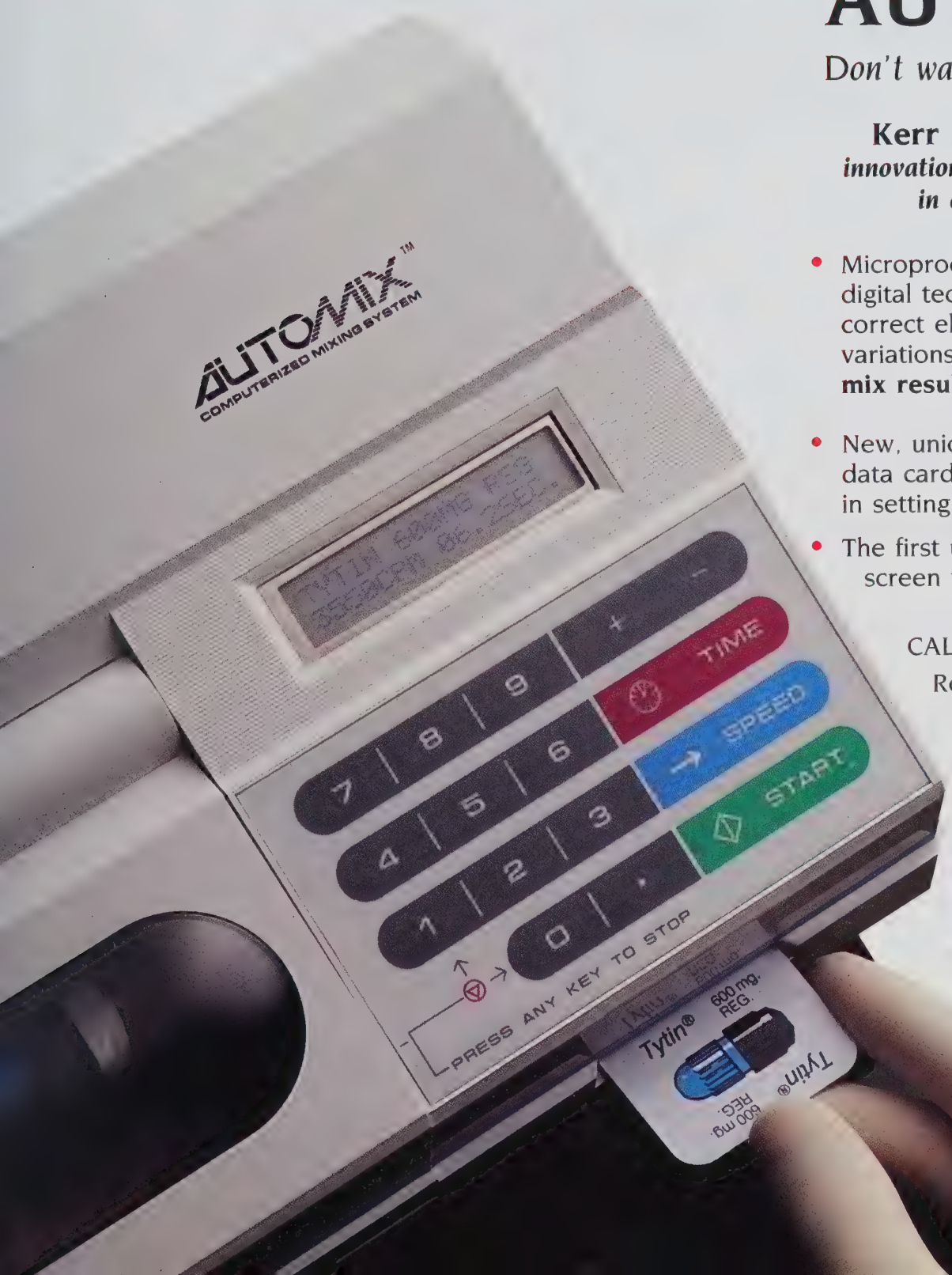
AUTOMIX

Don't waste it. Mix it right!

Kerr AUTOMIX . . .
innovation and new technology in capsule mixing.

- Microprocessor system uses digital technology to automatically correct electrical and mechanical variations, assuring **consistent mix results!**
- New, unique factory-programmed data cards **eliminate guesswork** in setting mixing speed and time.
- The first user-responsive display screen **verifying performance.**

CALL YOUR **ASH TEMPLE** Representative for a demonstration of the AUTOMIX system.



KERR®

AUGUST 1992

When Harry Temple founded Ash Temple in 1895, his commitment to provide the dental profession with quality products and services was enhanced by values of honesty and integrity, which we wholeheartedly endorse today.

From that early Toronto dental supply house to the opening of our first Western Branch in Winnipeg in 1904, to the establishment of a Quebec City operation in 1976, we have grown to encompass 14 full-service centres across Canada. Each is staffed by seasoned sales, support and technical people striving to maximize the value of their services to each of you, while ensuring prompt product deliveries and timely equipment repairs.

Ever conscious of the need to be a current and relevant source of product and services, we have supplemented our traditional distribution functions in the supplies, equipment and repairs areas by maintaining a reference library of materials, techniques and practice data, in print and audio, for our mutual use. We also attend major international trade and research meetings to understand emerging technologies.

We consider as an integral part of our mandate, the assistance we extend in finding associates and buyers of existing clinics, in designing and planning dental offices, in locating and starting up a practice, or in supervising construction.

We facilitate the prompt preparation of preliminary and final plans for new or expanded facilities by utilizing sophisticated computerized planning and plotting equipment to better document your options as you create your working environment.

As a Canadian-owned Corporate member of the Dental Community, we have accepted the challenge of innovation and research by investing in subsidiaries and/or divisions bringing unique products and services to the profession.

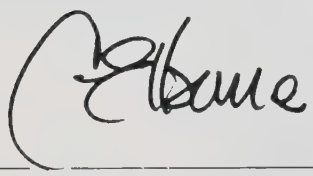
In 1986, we extended our activities to the design and manufacture of custom and standard dental cabinets through our A-Tech Manufacturing Division to meet your requirements with a greater understanding of your individual circumstances.

In 1987, Microbex Aseptics Inc. was formed to develop and manufacture a line of dental office asepsis and anti-microbial products. Its sister company, Acrylium Inc. has the mandate of developing and producing specialty polymers for use in the production of prosthetic materials and appliances.

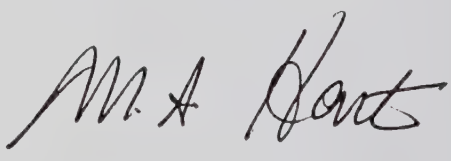
In 1992, we entered into a joint venture agreement to develop and manufacture a new technology with significant international potential. Introduction to the market is scheduled for 1993.

We firmly believe that by providing a stimulating and satisfying environment for the Ash Temple people servicing you, we minimize staff turnover, which in turn assures you of consistent and predictable services. We also find that this stability enhances the quality of our on-going dialogue promoting greater awareness of your changing needs.

Our colleagues join us in reiterating Ash Temple's commitment of the past 97 years to provide you with quality products and services, at competitive prices, while maintaining a high degree of flexibility and investing in innovative products to keep pace with the evolution of dentistry.



F.C. Elborne
President



M.A. Hart
Chairman of the Board

Why deal with a Canadian full-service dental distributor?

It's simply good business.

Ash Temple has been committed to Canadian dentistry since 1895.

Generations of dentists have known Ash Temple as a dependable source for dental supplies, equipment and services.

Ash Temple supports local associations, advertises in Canadian dental journals, exhibits at Canadian conventions and provides "Equity Grants" to National and Provincial associations and dental schools.

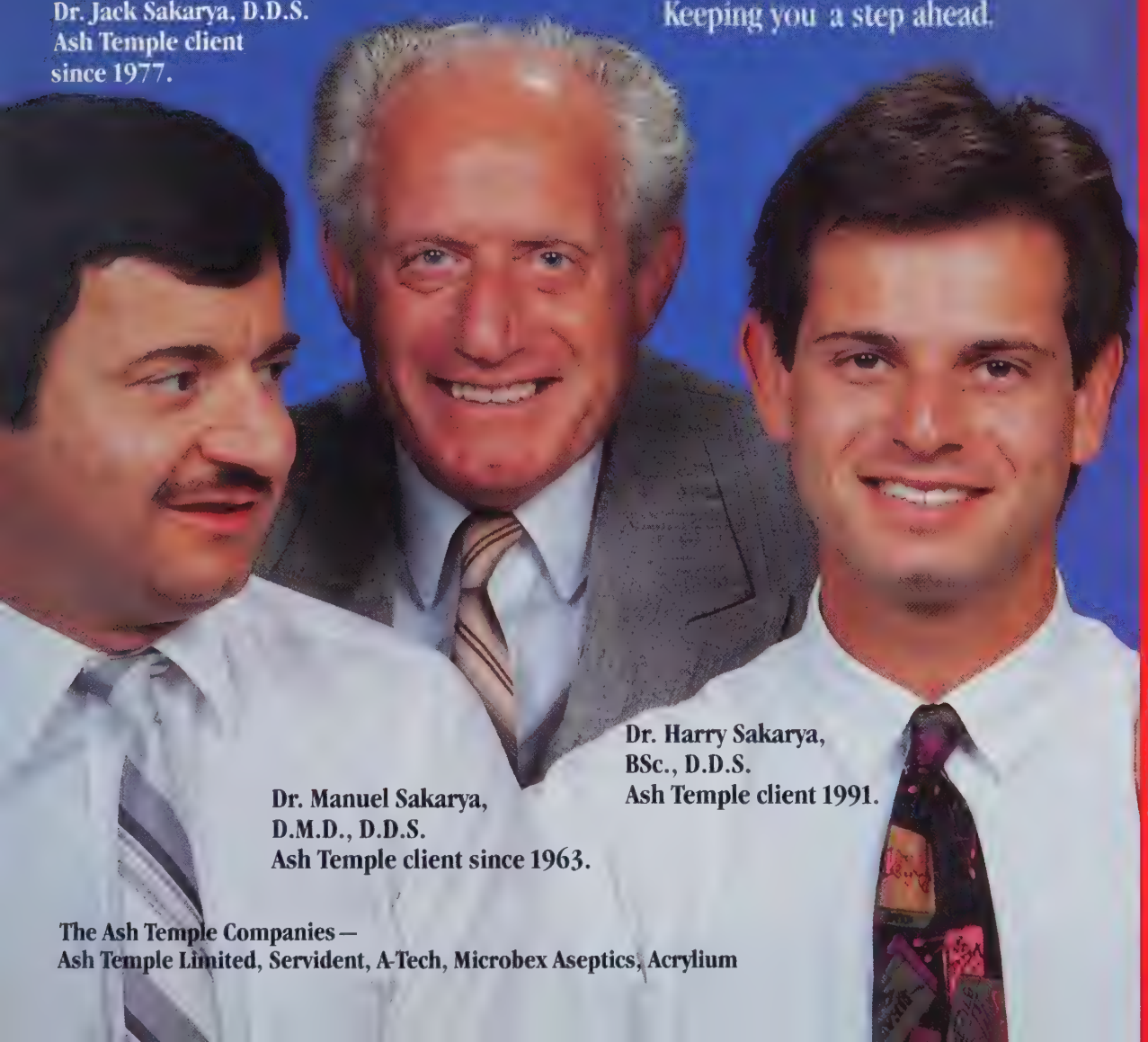
As a Canadian corporate citizen, we support the Canadian economy and pay taxes in Canada. Ash Temple branch personnel and their families are participants in their local economies.

By supporting your Canadian full-service distributor, you reinforce *your* local economy, promote local employment, and improve Canada's competitive position.

Ash Temple Limited, your logical Canadian source of supply from coast to coast!

Ash Temple LIMITED

Keeping you a step ahead.



Dr. Jack Sakarya, D.D.S.
Ash Temple client since 1977.

Dr. Manuel Sakarya, D.M.D., D.D.S.
Ash Temple client since 1963.

Dr. Harry Sakarya, BSc., D.D.S.
Ash Temple client 1991.

The Ash Temple Companies —
Ash Temple Limited, Servident, A-Tech, Microbex Aseptics, Acrylium

ASH TEMPLE SERVICES:

Ash Temple has 14 strategically located, full-service depots —
Halifax
Saint John
Quebec
Montreal
Ottawa
Toronto
Hamilton
London
Winnipeg
Regina
Calgary
Edmonton
Vancouver
Victoria

In addition, there are sales and service staff located in 11 other communities across Canada.

All locations stock over 100,000 consumable items.

Ash Temple can assist you to —
- locate dental practice sites
- search for associates
- secure staff
- design your office
- help in selling your practice

Ash Temple's Equity Program allows you to set up a convenient schedule for delivery of supplies with a variety of payment options, volume discounts and rebate plans.

The annual Ash Temple Equity Grant supports dental associations and dental faculties of Canadian Universities.

The most natural looking teeth you can offer your patients

Myerson®

ADA ACCEPTABLE
American Dental Association

SPECIAL RESIN TEETH
STANDARD RESIN TEETH
PORCELAIN SPECIAL TEETH

TORONTO
31 Scarsdale Road.
Don Mills, Ontario M3B 2R2
Phone: (416) 449-2300

CALGARY
6320-11th Street E., Bay #12
Calgary, Alberta T2H 2L7
Phone: (403) 640-1422

EDMONTON
10232-112th Street
Edmonton, Alberta T5K 1M4
Phone: (403) 422-4155

HALIFAX
2 Bluewater Road
Nova Scotia B4B 1G7
Phone: (902) 835-1103

HAMILTON
318-320 Dundurn Street S.,
Hamilton, Ontario L8P 4L4
Phone: (416) 527-1141

LONDON
41 Adelaide Street N., Unit 57,
London, Ontario N6B 3P4
Phone: (519) 432-4322

MONTREAL
5400 Boul. Thimens
St. Laurent, Quebec H4R 2K9
(514) 337-3368

OTTAWA
1140 Morrison Drive,
Nepean, Ontario K2H 8S9
Phone: (613) 596-5575

QUEBEC CITY
2349 Dalton
St. Foy, Quebec G1P 3S3
Phone: (418) 657-2970

REGINA
408 MacDonald Street,
Regina, Saskatchewan S4N 6E1
Phone: (306) 721-8181

SAINT JOHN
895 Ashburn Lake Road,
R.R. #1,
Saint John, N.B. E2L 3W2
Phone: (506) 633-0123

VANCOUVER
3351 Wayburne Drive,
Vancouver, B.C. V5G 3L1
Phone: (604) 291-2971

VICTORIA
760 Enterprise Cr.,
Royal Oak Industrial Park,
Victoria, B.C. V8Z 6R4
Phone: (604) 385-9707

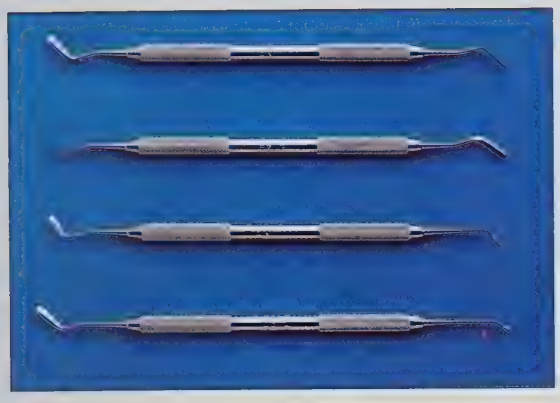
WINNIPEG
615 Erin Street,
Winnipeg, Manitoba R3G 2W1
Phone: (204) 774-2514

CALL YOUR ORDER TO YOUR LOCAL ASH TEMPLE/ SERVIDENT REPRESENTATIVE

Myerson® is a trademark of Nobelpharma AB.

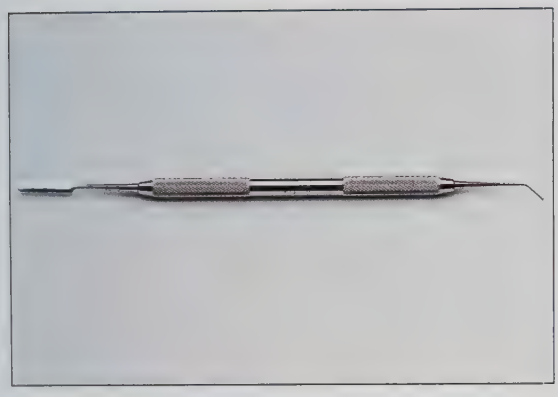
Hu-Friedy®

OPERATIVE SPECIALS

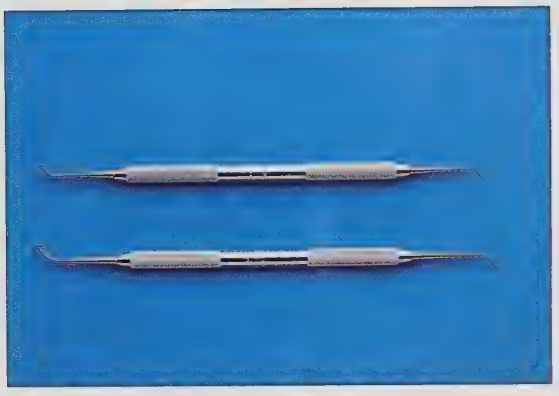


COMPOSITE/
PLASTIC
FILLING
INSTRUMENTS

CARVERS

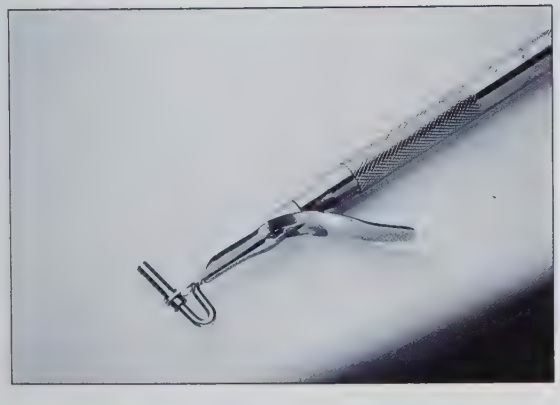


MINI
SPATULA/
PLACEMENT
INSTRUMENT



BURNISHERS

PLUGGER



AMALGAM
CARRIER

DOUBLE END AMALGAM CARRIERS

SAVE $20.00

REGULAR	SPECIAL
$61.05	$41.05

"Zipped, Perfed & Short." A Clear Case For Thermafil.

Molar obturated with three Thermafil Plastic Obturators. Unretouched Photo.

Zipping, perforating or instrumenting substantially short of the apex is to be avoided.

Regardless of the circumstances, all cases require a reliable obturation of the root canal system. With Thermafil, you can achieve a homogeneous, three-dimensional fill in a variety of situations.

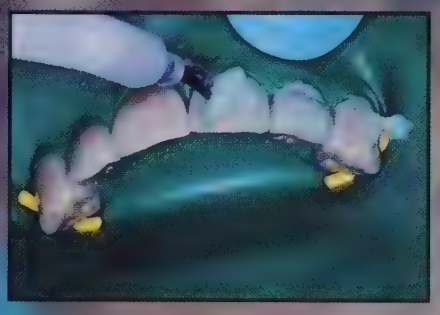
In a single insertion, our flexible plastic or metal carriers condense "alpha" phase gutta-percha to the working length and into available lateral and accessory canals. Our plastic carriers also offer easy post preparation.

The point is clear: In the face of adversity, Thermafil offers a clear solution.

THERMAFIL®

ASH TEMPLE

Our Bleach Your Light ...3 minutes



"Shofu Hi Lite Dual Activated Bleach is one of the most significant advancements made in esthetic dentistry in the last ten years."

-Ronald E. Jordan, D.D.S., M.S.D.

Shofu Hi Lite is a fast, effective, hydrogen peroxide bleaching system that features both light and chemical activation. For accelerated bleaching in cases such as spot bleaching or pretreatment of dark tetracycline bands to gain color uniformity, Hi Lite can be light activated for a mere 2 to 3 minutes with a composite curing light. Otherwise, Hi Lite works chemically in just 8 to 10 minutes. In either case, Hi Lite's color indicator shows you when the process is complete.

With this in-office bleaching system you get better results,[1] easier use, greater patient acceptance and satisfaction, and a higher return for your chairtime.[2] Patients will see excellent results after just one application: a two-shade difference is not uncommon.[3] In fact, three to four shade changes following treatment have been documented.[4]

For fast, effective, in-office bleaching call your Shofu dealer today.

C.D.A. CONVENTION SPECIAL
$285.00
Offer ends September 30th.

Opinions from clinical evaluators:

1. Scott Hanosh, D.D.S.
2. Fred Hanosh, D.D.S.
3. Paul Belvedere, D.D.S.
4. John Kanca, III, D.M.D., F.A.G.D., F.A.D.M.

Photographs courtesy of Drs. Fred and Scott Hanosh

SHOFU DENTAL CORPORATION
CHEMICAL DIVISION

SHOFU®

©1991, Shofu Dental Corporation

STRENGTH runs in the family.

Presenting the leader in a family of champions:

VALIANT® SNAP-SET™.

Even before we gave Valiant Snap-Set amalgam its incredible set time, we knew it was a superior amalgam. After all, it's the only amalgam with a "one-hour compressive strength" of over 49,000 psi. Not to mention excellent resistance to condensation, super-smooth carving and fast handling.

Then again, you'd expect nothing less from a member of the Valiant family.

"The Dental Advisor" recommends

Every year *The Dental Advisor*™ has rated high-copper amalgams—1984, 1987, and 1991—Valiant or Valiant–Ph.D™ amalgam has come out on top. No matter which member of the family you prefer, you can use it with confidence for years to come.

To get legendary strength and a faster set, ask your distributor for Valiant Snap-Set amalgam.

April 1992

The Dental Advisor Plus™ rates

VALIANT SNAP-SET

Excellent "+++++"

The Dental Advisor and The Dental Advisor Plus are registered trademarks of Dental Consultants, Inc.

Innovations you can put into practice.

Valiant® Amalgams

Caulk Canada
Dentsply

Caulk Canada Division Dentsply Canada Ltd. ©1992 Dentsply International Inc. All Rights Reserved.

Sultan

QUALITY PRODUCTS AT GREAT PRICES

PUREVAC® Evacuation Cleaner

- North America's No. 1 Brand
- Dissolves Solid Debris
- Eliminates Cleaning Or Changing The Trap
- Lemon Scented & Biodegradable
- Non-Foaming
- Dissolves Calcium Build-Up in Vacuum Pumps

3.5 Litre
1 Quart

PROPORTION® Ultrasonic Cleaner

- Super Concentrated Pre-Measured Unit Dose Packs
- Just Add Water. No Lifting, Spilling Heavy Gallon Jugs
- Eliminates Storage, Handling And Shipping Problems
- More Economical Than Pre-Mixed Solutions
- Each Pack Makes 1 Gallon

48 Per Box

COMFIT® Face Masks

- Molded Mask Design
- Will Not Fog Glasses
- Built-In Nose Guard For Exact Fit and Comfort
- 99% Filtration
- Fiberglass Free
- Available in Green (Regular Size) or Pink (Ms. Size) For Comfort Fit

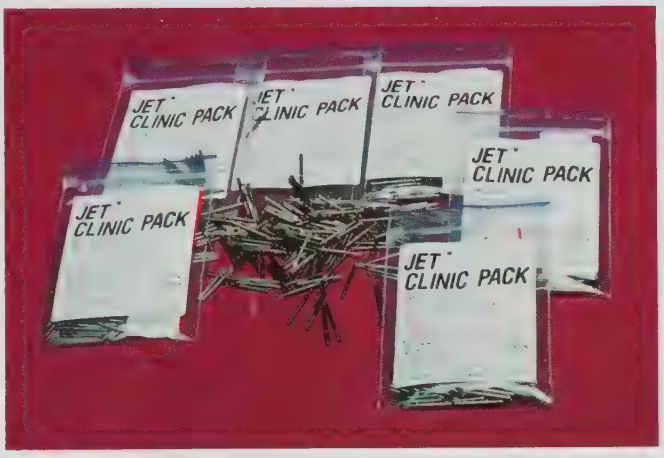
Medium/Large Green
Small/Medium Pink

TOPEX® Topical Anaesthetics

- Fast Acting
- Great Tasting
- No Bitter Aftertaste
- Great Patient Acceptance
- Available In Cherry, Mint, Pina Colada and Bubble-Num

Bubble-Num 30 gm
Cherry 30 gm
Mint 30 gm
Pina Colada 30 gm

JET CARBIDE BURS
100 BULK CLINIC PAK



Regular Cutting	$135.00
Trimming & Finishing	$355.00
Fine Cross Cut	$355.00
Fine Finishing	$440.00
Latch & Dome	$153.00

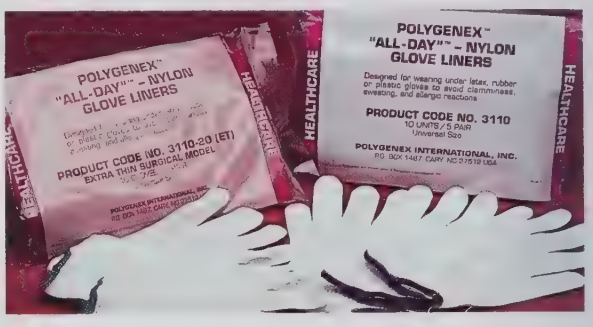
MICROBEX
MICROBIAL CONTROL
CONTRÔLE MICROBIOLOGIQUE

4L Instrubex G PLUS FREE ACTIVATOR	$25.95
4L Instrubex E	$29.95
4L Surfex E	$29.95

Visit the Ash Temple Display at the Canadian Dental Association Convention (Calgary, Alberta)
August 31st. to September 1, 1992.
Booth Numbers: 102, 104, 106, 108, 110, 112, 201, 203, 205, 207, 209, 211

"ALL-DAY" WASHABLE
NYLON GLOVE LINERS

Designed for wear under latex gloves



5 pair per box

Standard	$26.30
Extra Thin	$29.90

KENDALL
LATEX GLOVES

1 Box	$10.45 ea.
20 Boxes	$ 9.25 ea.

HEMOCEL
INSTANT HEMOSTATIC SEAL

$49.30

ASH TEMPLE
SINGLE USE NEEDLES

Buy 1000 **Get 100 FREE**
Plus **1 FREE** Needle Recapper

Congratulations to the winners of the Ash Temple Spring Coupon book draw:

Dr. Nilo Fabbro, Sault Ste. Marie, Ontario – Hitachi colour Television

Dr. Joseph Gris' staff, Campbell River, British Columbia – J.V.C. Portable Compact Disk/Cassette Player

Dr. Donald Lesniak, St. Albert, Alberta – Inuit Loon Sculpture.

VIROBEX-P

ANTIMICROBIAL LIQUID HANDWASH

500 ML Dispener	$ 9.95
4 Litre Refill	$29.95

ASH TEMPLE

SALIVA EJECTORS

1 Package of 1000 ea.	$44.00
3 Packages of 1000 ea.	$39.00

ASH TEMPLE

COTTON ROLLS
Box of 2000 Rolls

Regular	Special
1 Carton $36.50 ea.	$33.00 ea.
3 Cartons $33.50 ea.	$29.95 ea.
6 Cartons $31.00 ea.	$27.90 ea.

ASH TEMPLE

FRONT SURFACE MIRRORS

1 Dozen		$26.80
3 Dozen	@	$24.75

THERMAFIL™

Endodontic Obturators

Now you can completely obturate any root canal in less than 30 seconds

REGULAR STARTER KIT

$529.00 ($626.65 Value)

MINI STARTER KIT

$449.00 ($474.90 Value)

6 PACK PLASTIC OBTURATORS

Buy 5 Get 1 FREE

ATECH

ULTRASONIC SOLUTION

4 Litre Bottle

$26.85 ea.

ASH TEMPLE

ABSORBENT (PAPER) POINTS

COLOUR CODED

Buy 6 Boxes	Get 1 FREE
Buy 12 Boxes	Get 3 FREE

Kinetic Energy + Laser Energy = Two Major Advances in Dentistry

Ash Temple proudly presents the two most advanced instruments available to the dental profession today. See them in action at the CDA Meeting in Calgary.

KCP 2000

A brand new instrument employing kinetic energy to perform cavity preparations with quiet, painless precision

- No Drill
- No Contact
- No Vibration
- No Whine
- Less Heat
- Less Anesthesia
- Safer
- Fast
- Efficient
- Precise
- Versatile

The instrument that electrified the 1992 International Dental Show in Cologne, Germany

KCP 2000

Nd:YAG

American Dental Laser 300 Nd:YAG

The leading dental laser in the world, with 1,300 units installed. Clinically superior — efficient, precise and highly advanced for restorative, perio and endo procedures. Proven to be the safest — 2.5 million patients treated safely and effectively. The best investment — the only dental laser that pays for itself with an average monthly increase in revenue of more than $3,000.

- Bactericidal
- Less Invasive
- Virtually Bloodless
- Minimal Anesthesia
- Unparalleled Precision
- Preferred by Patients

Ash Temple, Ltd. ■ CDA Convention ■ August 31 - September 1

FOR INFORMATION CALL (416) 449 2300

IVOCLAR-VIVADENT is one of the largest dental manufacturers in the world; headquartered in the Principality of Liechtenstein on the Swiss border.
With manufacturing facilities or distribution centers in 14 countries, spanning 4 continents, IVOCLAR-VIVADENT is dedicated to the continuing research and development of new products.

VIVADENT SELECT

Vivadent has put together an assortment of their finest restorative products enabling you to experience first hand why Vivadent products are the best in the industry.

KIT INCLUDES

- HELIOMOLAR
  Universal resin, clinically #1
- HELIOPROGRESS
  Specifically for special anterior situations
- SYNTAC DENTIN/ENAMEL BOND
  Immediate high bond strength
- FERMIT
  Light cured, temporary restorative
- HELIOSEAL
  ADA accepted, pit & fissure sealant
- DUAL CEMENT
  Dual cure, fluoride releasing cement for indirect restorations and endodontic posts
- POLISHERS/FINISHERS

$227.00

VALUE
$400.00

IF PURCHASED INDIVIDUALLY

IVOCLAR **VIVADENT**

BioSonic™
The "Hands-Off" "Ultrasonic Cleaning System"

$575.00

BioSonic™ Ultrasonic Cleaning System

An essential part of your infection control system

- Protects you and your staff by minimizing contact with contaminated instruments
- Extra large tank holds 1 beaker plus instrument basket or 3 beakers
- Elegant, low-profile design
- So quiet, you hardly know it's there!

BioSonic with accessory kit
UC-30 General Purpose Solution

UL-39 Cement Remover Solution

NEW from Coltène Whaledent

coltène®
PRESIDENT
IMPRESSION MATERIAL
VINYL POLY SILOXANE

BUY AND TRY
President C-3040 with trial kit!

- Unsurpassed dimensional stability
- Consistent accuracy
- Tasteless, odourless, biocomptable

$166.80
C-3040

coltène® whaledent

BELMONT CHAIR, UNIT & LIGHT PACKAGE FOR UNDER $10,000.00

LIMITED TIME OFFER

This package includes our top of the line ...

- Bel-7 chair with articulating head rest, foot control and arm slings.
- Pearl-301 Dental unit accommodates three automatic hand pieces.
- And our New 501-T touchless operating light.

The BEL/7 Chair functions in tandem with the Pearl over-the-patient delivery system.

Seamless upholstery is available to complement your aseptic control program.

The foot control provides "hands-free" chair operation to control cross-contamination.

The ultra-thin and narrow backrest places the patient in an efficient working position.

An articulating headrest, 60° rotation and snap-on upholstery is standard.

Swing-away arms for easy entry and vinyl slings for arm and shoulder comfort.

A 5 year warranty applies to all parts except upholstery on the BEL/7 Chair (refer to published warranty for specific details)

Touchless dental operating light features touchless infra-red sensor turns light on & off to reduce cross-contamination.

Three position intensity/switch.

Soft edges 3" X 7" light pattern.

The Pearl-301 Dental Unit is ideal for 2, 4 handed dentistry, seated or standing.

Non-retraction and handpiece flushing assist in maintaining an asepsis program.

The air-lock arm holds the delivery head in the desired working position

Optional at additional cost, a telescoping assistant arm on Model 301 places the HVE, and SE within easy reach of the assistant or the doctor.

Also from Belmont . . .

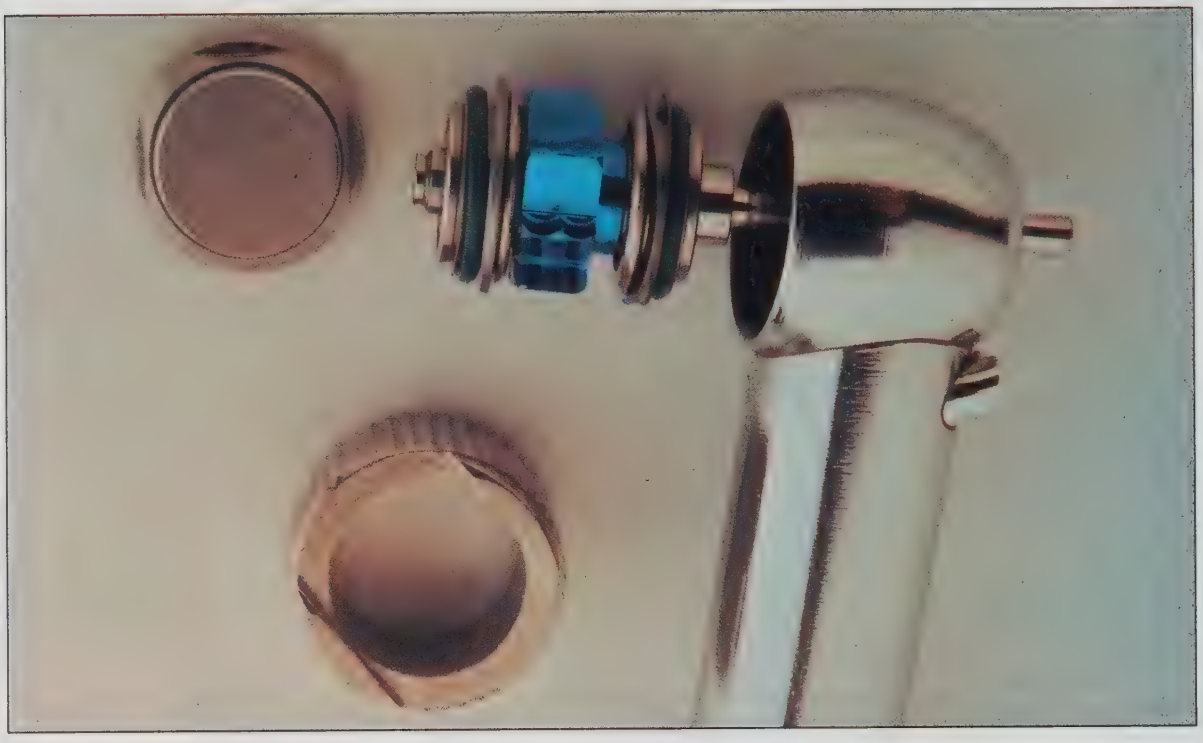
Feature packed operating stools available in a large selection of colors to compliment any decor.

CONTACT YOUR LOCAL ASH TEMPLE REPRESENTATIVE TODAY

TAKARA BELMONT

VISIT OUR CDA DISPLAY IN CALGARY BOOTH NO's 324 – 326

THE FACTS



- *"The high hardness & low coefficient of ceramics promise substantial performance improvement . . . This may be the key to (their) ability to run unlubricated"*

quote from Inside Bearings
Engineering Report
April 1986

- The time, expense & detrimental effects of constant oiling are eliminated. Pre sterilizing cleaning of bur chamber and surface according to directions is all that's necessary.
- This ceramic bearing turbine is the only dental turbine with a ONE YEAR WARRANTY!
- This advanced technology is an exclusive patented feature available only in the 430 series highspeed handpieces from

Star® Dental

Division of Den-Tal-Ez, Inc.

See your Ash Temple Rep. for special Asepsis Package pricing.

The Proven[1-4] Luting Cement.

KETAC®-CEM SIMPLIFIES ALL YOUR CEMENTATIONS AND RELEASES FLUORIDE FOR LONG LASTING RESTORATIONS.

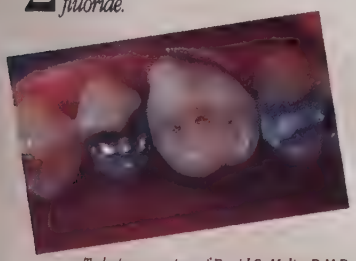
EASY TO USE

APLICAP® **MAXICAP®**

Choose Aplicap or Maxicap. Maxicap contains four times the material of an Aplicap.

1 *Directly from the capsule, line the crown with a THIN LAYER of KETAC-CEM and seat it.*

2 *The final restoration is thoroughly bonded, compatible and releases fluoride.*



Technique courtesy of David O. Maltz, D.M.D.

Since ESPE® KETAC-CEM is encapsulated, you have a consistent mix, optimal physical properties and an extended working time[1]. No hand mixing, no mess. You save valuable chairtime and the patient benefits from fluoride release and a proven chemical bond[2].

Thousands of cementations during 10 years of clinical use attest to KETAC-CEM's compatibility to the pulp[3], very low solubility and low film thickness.

Whether cementing bridges, cast cores or orthodontic bands, choose KETAC-CEM for convenience and your patients' dental health.

Radiopaque KETAC-CEM Aplicap or Maxicap introductory packages - available through your dealer - come with the appropriate capsule activator and applier. Original KETAC-CEM powder/liquid is also available.

1 Graham J. Mount, "Glass Ionomer Cements: Clinical Considerations," Clinical Dentistry, Vol. 4, Chapter 20A. 2 Council On Dental Materials, Instruments And Equipment, "Using Glass Ionomer Cements," JADA, Vol. 121, July 1990. 3 Council On Dental Materials, Instruments And Equipment, "Biocompatibility And Postoperative Sensitivity," JADA, Vol. 116, May 1988. 4 Full bibliography available upon request.

® KETAC-CEM, APLICAP and MAXICAP are registered trademarks of ESPE, GmBh, Germany. ©1992

KETAC®-CEM...
For Your Patients' Dental Health.

ESPE-premier

Introducing The TRIAD® 2000™ Light Curing Unit. Ready To Give You A Helping Hand Any Time Of Day.

Any time you need a custom tray, denture reline, stabilized baseplate, or any of the other acrylic appliances you routinely use, you can create it...easily and immediately right at chairside with the TRIAD 2000 System. Instead of completing the procedure later, you keep on going. Possibly saving an extra appointment, definitely saving time.

TRIAD techniques are very easily learned. The TRIAD light cure materials are pre-mixed, ready-to-use and ready-to-cure on command. There's no monomer odor or mess.

Just the rewarding experience of completing more patient care in less time. And that will please your patients, too!

Let us demonstrate how easily you can add the benefits of the new, economical TRIAD 2000 Light Curing Unit to your practice. Call your Dentsply dealer for a free product demonstration.

TRIAD® 2000™ System. The Helping Hand℠

Dentsply

ASH TEMPLE

ONE MINUTE FLAT!

Nothing disinfects surfaces faster.

Most surface disinfectants take 3 to 15 minutes of continuous surface wetness to kill micro-organisms. Now, with FULL-SPECTRUM Surfex-E, you get proven one minute disinfection of operatory surfaces.

- Cost-effective (reduced staff time, faster patient turn-around)
- Subjected to extensive microbiological testing (results available upon request)
- Pleasant lemon scent and non-corrosive formulation make Surfex-E a pleasure to use

Part of the Microbex Family

Innovation, both in product and technique, is a crucial part of Microbex's success. Our unique pump dispensing systems eliminate waste and mess while batch by batch activation provides virtually unlimited shelf life. The complete Microbex disinfection system, covering all areas of the dental clinic, leads the way in efficient and effective office asepsis.

Leaders in Microbial Control

Microbex, through our fully equipped research laboratory facilities, offers a full range of microbial control services, including computerized spore testing for Chemiclave®, Autoclave and Dry Heat Sterilizers. Put our experienced team of chemists and microbiologists to work for you today.

For more information on Surfex-E, the rest of the Microbex asepsis product line or our microbial control services, simply fill out and mail the handy postage-paid card opposite.

MICROBEX
MICROBIAL CONTROL
CONTRÔLE MICROBIOLOGIQUE

Leaders in Microbial Control

680 Denison Street,
Markham, Ontario, L3R 1C1
Telephone (416) 477-5442,
Fax (416) 477-0740

DISTRIBUTED IN CANADA BY ASH TEMPLE LTD.

Why deal with a Canadian full-service dental distributor?

It's simply good business.

Ash Temple has been committed to Canadian dentistry since 1895.

Generations of dentists have known Ash Temple as a dependable source for dental supplies, equipment and services.

Ash Temple supports local associations, advertises in Canadian dental journals, exhibits at Canadian conventions and provides "Equity Grants" to National and Provincial associations and dental schools.

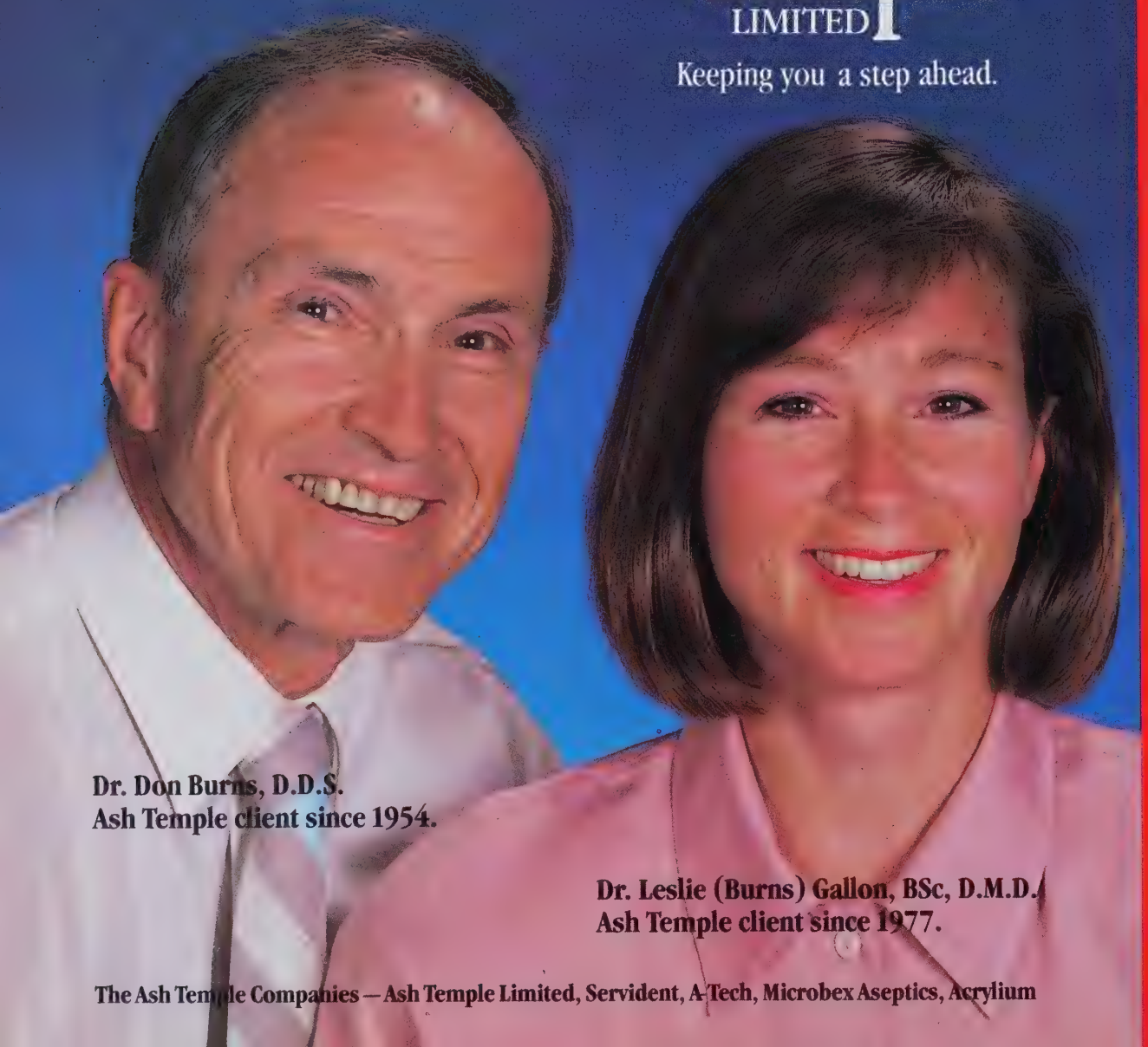
As a Canadian corporate citizen, we support the Canadian economy and pay taxes in Canada. Ash Temple branch personnel and their families are participants in their local economies.

By supporting your Canadian full-service distributor, you reinforce *your* local economy, promote local employment, and improve Canada's competitive position.

Ash Temple Limited, your logical Canadian source of supply from coast to coast!

Ash Temple LIMITED

Keeping you a step ahead.



Dr. Don Burns, D.D.S.
Ash Temple client since 1954.

Dr. Leslie (Burns) Gallon, BSc, D.M.D.
Ash Temple client since 1977.

The Ash Temple Companies — Ash Temple Limited, Servident, A-Tech, Microbex Aseptics, Acrylium

ASH TEMPLE SERVICES:

Ash Temple has 14 strategically located, full-service depots —
Halifax
Saint John
Quebec
Montreal
Ottawa
Toronto
Hamilton
London
Winnipeg
Regina
Calgary
Edmonton
Vancouver
Victoria

In addition, there are sales and service staff located in 11 other communities across Canada.

All locations stock over 100,000 consumable items.

Ash Temple can assist you to —
- locate dental practice sites
- search for associates
- secure staff
- design your office
- help in selling your practice

Ash Temple's Equity Program allows you to set up a convenient schedule for delivery of supplies with a variety of payment options, volume discounts and rebate plans.

The annual Ash Temple Equity Grant supports dental associations and dental faculties of Canadian Universities.

The Dental Practice Purchase/Sale – Creating a Win-Win Transaction

H. Jack Stockton, DMD, CFP, MBA

Key Words

Dental practice purchase/sale. Dental practice economics. Dental practice management.

Introduction

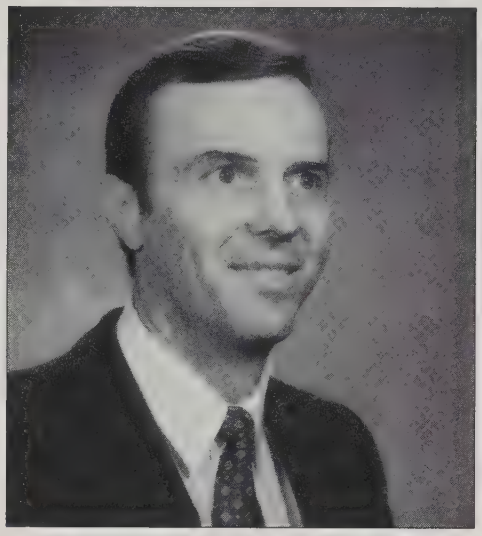
In North America, it is now commonplace for dental practices to be purchased and sold for considerable sums of money. Dental practice goodwill – defined in this article as the amount by which the purchase or sale price of a practice exceeds its tangible assets – has recently become a significant component of practice value.

Less than 20 years ago, practice goodwill was scarcely considered in setting the worth of a dental practice. But today, when it is becoming increasingly difficult to establish a successful dental practice, the value of goodwill has soared.

Goodwill is an intangible asset. The value associated with goodwill can be easily lost if the purchase/sale of a dental practice is not handled carefully. A win-win transaction occurs when the vendor is able to maximize the price of practice goodwill and, at the same time, the purchaser receives full value for his money.

Taxes are another important factor to consider. In Canada, the taxes payable by the vendor and/or purchaser after the purchase/sale of a dental practice can be very significant. These include: income tax, provincial sales tax (PST), and the goods and services tax (GST). Without proper planning and good communication between the vendor and the purchaser, they may end up paying more tax than necessary. A win-win transaction minimizes the total taxes paid by both parties.

The purpose of this article is to discuss the dental practice purchase/sale transaction, and to offer suggestions on how the optimum results can be achieved for all sides. Various issues will be addressed, including:



Jack Stockton

1. What factors and steps in the dental practice purchase/sale process are important, such that goodwill is maximized and a win-win transaction occurs?

2. What planning tactics can be used to minimize the total taxes associated with a dental practice purchase/sale?

Important Factors and Steps in the Purchase/Sale Process

Selling a dental practice is not the same as selling a widget factory. The author's experience in dental practice purchase/sale transactions has been that the most successful transactions have certain common elements.

First, the attitude of the vendor has to be considered. Vendors must be willing to sell for a fair price. Also, they should care about ensuring the future success of the purchaser, and that the practice's patients will continue to be well served. A vendor whose only concern is maximizing the sale price will often find that it is difficult to sell his or her practice, as potential purchasers will quickly sense this and look elsewhere.

Second, prior to speaking with potential purchasers, the vendor should establish a fair value for the practice. It's best to seek one or more unbiased third-party valuations. The more documentation there is to support the practice valuation the better (e.g., equipment appraisals by more than one dental supply company, original invoices for leasehold improvements, etc.). Based on this supporting information, a price should be set for the practice that includes an allocation of the fair market value of its various assets.

Experience has shown that most win-win transactions occur when the asking price is initially set at a fair value and is quite firm. Situations where practices are purposely overpriced, based on the idea that purchasers will bid for the practice and the highest offer will be accepted, typically lead to win-lose negotiations.

Third, win-win purchase/sale transactions have a much better chance of occurring if the purchaser and vendor get to know one another, both personally and professionally, before the formal purchase contract is drafted. Until the purchaser and vendor have established mutual respect and trust, it is very difficult to negotiate a win-win purchase/sale. In fact, if mutual respect and trust cannot be established, it is usually best for both parties to terminate their discussions and look elsewhere.

Unless the vendor is totally committed to maximizing the transfer of his or her patients to the buyer, that individual will not receive the full value of the practice goodwill included in the selling price. But vendors will not be willing to make this commitment unless they have professional and personal respect for the buyer. Therefore, mutual respect and trust must be established at an early stage in the negotiations. Purchasers will then be willing to pay top dollar for goodwill, confident that they will receive full value for their money. For this reason, it is the author's belief that dental practice purchase/sale transactions negotiated primarily through agents and lawyers will rarely lead to a win-win result.

Fourth, once mutual respect and trust have been established, the best transition method should be discussed and agreed to. Consultants may be able to offer useful suggestions at this stage. It is often ideal to have a transition period where the vendor continues on in the practice, as an associate, for a pre-determined period of time. However, space limitations, time constraints, or the health of the vendor frequently make this option impractical.

In almost all cases, it is beneficial for the vendor and purchaser to mutually draft a letter to the practice's patients of record. The letter should be signed by the vendor and, normally, it should include: a thank you to the patients for their past loyalty to the practice; an honest, confidence-building introduction of the purchaser; a clear statement that patient records and X rays will be left in the hands of the purchaser; and a statement informing the patients that they will be contacted by the purchaser to confirm scheduled appointments and/or to arrange recall appointments. Usually the vendor prepares the letter, while the purchaser pays to have it duplicated and mailed.

Fifth, the fair value of the practice can now be reconfirmed and the final details of the transaction worked out. If the valuation was done objectively, the purchaser should be happy to pay the asking price. All that remains is to determine how the total taxes related to the transaction can be minimized, and whether vendor take-back financing would be mutually beneficial. Certainly, each party should seek independent advice. However, win-win negotiations are usually easier when outside advisors are not directly involved.

Once all the transaction details have been finalized verbally, it is often very useful to have the purchaser prepare a letter of intent detailing, in simple terms, what has been agreed to. The vendor can review this with his or her advisors, and confirm the mutual understanding with the purchaser, before engaging lawyers to draft the final agreement(s). Using a letter of intent is a win-win tactic that often helps to reduce legal costs for both parties, as well as lessening the possibility that a misunderstanding will develop at the critical, final stage.

Finally, once both parties know that the transaction is fair and mutually beneficial, the purchase/sale agreement(s) should be formalized with the assistance of lawyers.

Minimizing Associated Taxes

The tax aspects of win-win transactions are complex, usually to the point where professional advice is required. There are a number of technicalities and opportunities for overall tax minimization that should be considered in most practice purchase/sale transactions, however.

It is usually impossible to avoid paying at least some tax on a dental practice purchase/sale. However, if mutual respect and trust have been established – and both the vendor and purchaser are willing to openly and honestly discuss their personal tax situations – it is often possible to structure the purchase/sale transaction to minimize the purchaser's after-tax outlay while maximizing the vendor's after-tax proceeds.

In order to achieve a win-win transaction, where total taxes are minimized, the following conditions are necessary:

1) Both parties must have previously agreed on a fair practice value, based on a specific allocation of values to the various practice assets, notably: equipment, instruments, supplies, leasehold improvements and goodwill.

2) Both parties must be familiar with how the various items included in a practice purchase/sale are taxed.

3) Both parties must be willing to openly and honestly reveal their personal tax situations, e.g., individual marginal tax rates and capital gains eligibility, and the vendor's undepreciated capital cost of depreciable assets, etc.

4) Each party must be willing to let the other party benefit when overall tax savings can be achieved by restructuring the transaction.

Income tax considerations usually have a major bearing on the outcome of practice purchase/sale transactions. However, the potential impact of both the PST and GST must also be taken into account. Because different assets are taxed differently, a reallocation of value among the various practice assets often results in overall tax savings. Obviously, this reallocation of value must remain within "reasonable" limits to avoid reassessment by Revenue Canada, although some latitude is generally allowed.

A. Income Tax

For a practice purchase/sale transaction, the vendor will normally have to pay income tax on the proceeds of the sale, and the purchaser will usually be entitled to future tax benefits from the purchase of certain assets. When there is a restructuring of the transaction and a reallocation of asset values, changes that save the vendor income tax usually reduce the purchaser's future tax benefits and vice versa – although not necessarily by the same amount. Therefore, unless there is mutual openness and trust from square one, restructuring discussions quickly turn into win-lose negotiations.

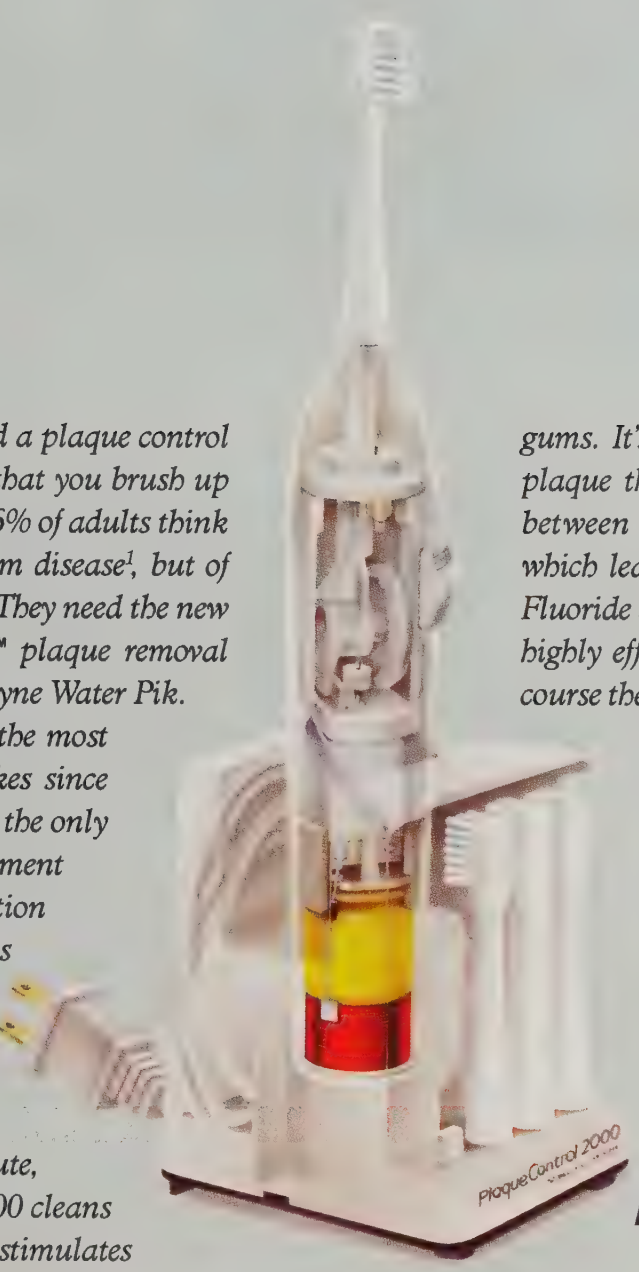
Win-win income tax negotiations are possible because, as previously mentioned, restructuring changes that cost one party to the transaction can often benefit the other party by a greater amount. Therefore, if the practice price is adjusted to reflect this reality, both parties can come out on top. Consider the following two examples of win-win restructuring:

Example 1: The initial practice value agreed to by the parties was based on the purchase/sale of certain practice assets. However, these assets are actually owned by the vendor's corporation (professional corporation or management company) and have been completely written-off. If the vendor's full capital gains exemption is available, it may be mutually beneficial for the vendor to reduce the purchase price significantly and for the purchaser to buy company shares instead of the practice assets. In this case, the vendor's after-tax proceeds should increase, while the price reduction should more than offset the future tax cost to the purchaser.

Example 2: The initial practice value was based on the purchase of certain practice assets. However, the vendor is retiring and is willing to assist the purchaser with the practice in the future. This could take the form of a consulting role. If the vendor has already fully used his or her capital gains exemption, it could be mutually beneficial for the purchaser to pay a larger total sum to the vendor providing a consulting fee took the place of a charge for goodwill. This is because the purchaser would be allowed a much larger, more immediate tax deduction, which would more than offset the higher price. The vendor would have a net benefit because of the higher purchase price.

There are a multitude of other tax-planning opportunities to consider based on how income taxes affect the various practice assets. Each purchase/sale situation will be different. **Table I** uses a formula, which calculates the present value of future tax benefits

The most acclaimed brush strokes since Van Gogh.



Before you recommend a plaque control program, we suggest that you brush up on a couple of facts: 76% of adults think they won't develop gum disease[1], but of all adults, 75% will[2]. They need the new PlaqueControl 2000™ plaque removal instrument from Teledyne Water Pik.

We like to say it has the most acclaimed brush strokes since Van Gogh because it's the only plaque removal instrument with the brushing motion that simulates the Bass technique, which is most recommended by dental professionals. With 2000 elliptical brush strokes per minute, the PlaqueControl 2000 cleans teeth thoroughly and stimulates gums. It's clinically proven to remove the plaque that manual brushing can miss, between the teeth and at the gumline[3], which leads to improved gingival health. Fluoride dentifrices have been shown to be highly effective in reducing cavities, so of course the PlaqueControl 2000 is designed to use any dentifrice, without extra maintenance. Best of all, the PlaqueControl 2000 is made by Teledyne Water Pik, a trusted name in professional dental products. So next time you're recommending a plaque control program, consider our new PlaqueControl 2000. It's a work of art.

PlaqueControl 2000™
TELEDYNE WATER PIK

1. Source: Lou Harris Study, Februaty 1991. 2. Source: American Dental Association. 3. Ciancio SG, Mather ML: Clinical comparison of two electric toothbrushes with different mechanical actions. *J Clin Periodontol*, in press.

See us at booth No. 129 at the CDA Convention

TRY THESE TWO FAVOURITES FROM SCICAN

SILK RUBBER DAM

Silk Rubber Dam is, simply put, the best dam available today.

- Silk Rubber Dam provides superior strength. Made of high-grade latex, it is less susceptible to breakage.
- Silk Rubber Dam is specially shrink-wrapped to seal the latex from drying due to heat and aging, This reduces the tendency of latex to break down and tear more easily when aged.

RAPIDCHEM

The new Dental XRay Chemistry from SciCan. Rapidchem produces high-quality dental films in just two and one-half minutes!

- More than twice as fast as existing chemistries.
- Lasts longer than traditional XRay chemistries.
- Rapidchem is developed exclusively for today's fast-paced dental practice.

SciCan
Science Serving Health

260 YORKLAND BLVD., TORONTO, ONTARIO, CANADA M2J 1R7 TEL (416) 491-5000 FAX (416) 491-5040

See us at booths 229 and 231 at the CDA Convention

TABLE I

The Dental Practice Purchase/Sale – Income Tax Effects

Present Value (PV) Cash Equivalent = Cost - PV of Future Tax Savings

$$\text{PV of Future Tax Savings} = \frac{C \times R \times T}{R + I}$$

Where:

- **C** is depreciable/amortizable cost
- **R** is capital cost allowance (CCA) rate
- **T** is dentist's marginal tax rate (assume 50%)
- **I** is discount rate (opportunity cost of capital) (assume 15%)

Category	Approximate PV Cash Equivalent For Purchaser	Tax Position Of Vendor
Accounts receivable	$1.00	No tax
Shares in company, partnership interest. (assumes no CCA available)	$1.00	Capital gain
Land	$1.00	Capital gain
Building	$0.90	Recapture of CCA
Goodwill	$0.88	Like capital gain
Major dental equipment, office furnishings, leasehold improvements.	$0.72	Recapture of CCA
Computer hardware	$0.67	Recapture of CCA
Hand tools < $200, computer software	$0.50	Recapture of CCA
Supplies inventory	$0.50	Income
Consulting fees	$0.50	Income

to the purchaser, to illustrate the after-tax cost to the purchaser of the various components of a practice purchase/sale using an "apples versus apples" approach. The tax consequences to the vendor are stated in the right-hand column.

If the vendor and purchaser are willing to discuss their tax situations openly, it should be possible for them to reallocate value among the various components of the purchase/sale transaction, and then adjust the final price to the mutual benefit of both parties.

B. Provincial Sales Tax and Goods and Services Tax

PST and GST are normally payable by the purchaser on most tangible assets of the purchase/sale (e.g., equipment, instruments and leasehold improvements), but not on goodwill or company shares. PST is not payable on consulting fees, and GST can usually be avoided on consulting fees if the annual fee is less than $30,000.

It is difficult to avoid paying PST on the tangible assets of a practice purchase/sale unless a share-purchase arrangement is used. Fortunately, GST can often be avoided without a share-purchase arrangement if: 1) the practice is sold as a going concern (and not as various taxable assets); and 2) neither the purchaser nor the vendor are registered for the GST.

As can be seen, it is often possible to structure a practice purchase/sale to minimize the total amount of tax payable, but the rules are complex and many factors must be taken into account. Openness between the parties involved in the transaction is essential, and numerous calculations will be needed to determine the optimum transaction structure. However, the effort is well worthwhile as significant tax savings can often be realized through win-win negotiations.

Summary

The importance of the dentist-patient/client relationship makes the dental practice purchase/sale unique compared with other business transactions. Dental practice goodwill can be easily lost, but establishing mutual trust between purchaser and vendor can lead to a win-win transaction through maximizing practice goodwill and minimizing associated taxes. Tax planning for the purchase/sale is complex, and, although this article has provided some basic information, professional advice is recommended. ■

Dr. H. Jack Stockton *is an assistant professor with the department of restorative dentistry, faculty of dentistry, at the University of Manitoba. He is course coordinator for practice management at the faculty, and does part-time consulting with private practice dentists.*

Reprint requests to **Dr. H. Jack Stockton**, *Faculty of Dentistry, University of Manitoba, 780 Bannatyne Avenue, Winnipeg, Manitoba R3E OW3.*

THE G FORCE

Effective, Convenient and Economical are the words that describe Germiphene's solutions to dental office asepsis. Each "G" FORCE product has been formulated and tested to conform to specific infection control procedures in the dental office and developed with the ease and convenience of the user in mind.

SOLUTIONS FOR YOUR INFECTION CONTROL PROBLEMS

GERMX *Hard Surface Spray*

A ready to use disinfectant spray for use on all hard surfaces; countertops, cabinets, chairs, fixtures, etc. Pleasantly fragranced, non-staining and non-corrosive, GERMX will disinfect in LESS THAN ONE MINUTE. Moreover, the detergent action of GERMX lets you clean while you disinfect. Contains a synergistic combination of ethanol, o-phenyl phenol, Germiphene solution, and chlorhexidine gluconate. For savings, GERMX is available in a convenient 4.5 litre Economy Refill Bottle.

GOBBLE *Evacuation System Cleaner*

GOBBLE will attack and dissolve all types of organic waste such as saliva, fluoride gels and other residue to keep your evacuation system clean, free-flowing and deodorized. The biodegradeable formulation of GOBBLE is a combination of enzyme plus detergent that works continuously between applications. Concentrated GOBBLE is easy to use: just tip our unique bottle to fill reservoir with 1 ounce, add water to reservoir, and evacuate or pour into system.

GLEAM *Ultrasonic Cleaning Solution*

GLEAM will thoroughly clean dental instruments, burrs, dentures, orthodontic appliances, glass slabs, diamonds, aspirator tips, precious metals, etc. quickly and safely by removing buffing compound, pumice, rouge, dried blood, and soils of all types. Special anticorrosives make GLEAM particularly kind to metal items.
Supplied as a concentrate in our unique tip-and-measure bottle, GLEAM lets you measure the exact amount of concentrate needed before you open the bottle. No messy repouring or measuring is necessary.

GLUTACIDE *Sterilizing and Disinfecting Solution*

For sterilization and high-level disinfection of dental instruments and devices, GLUTACIDE is the solution of choice. The convenient, ready to use formulation of 2% Activated Glutaraldehyde requires no activation and can be reused for up to 30 days with no loss of efficacy. The unused portion of GLUTACIDE remaining in the bottle is stable so you pour out only what you need and save the rest. Fresh mint fragrance makes GLUTACIDE a pleasure to use.

G-NOL *Disinfectant and Holding Solution*

G-NOL is a broad spectrum, dual synthetic phenol containing o-phenol phenyl (9%) and o-benzyl-p-chlorophenol (1%). It is bactericidal, virucidal, fungicidal, and pseudomonacidal in only 10 minutes and is compatible with all hard surfaces. Economical G-NOL is diluted 1:32 with tap water to obtain a disinfecting solution and 1:128 to obtain a holding solution.

GERMIPHENE® CORPORATION BRANTFORD, ONTARIO, CANADA N3T 5V7

CALL TOLL-FREE 1-800-265-8484 (For Area Codes 416, 519, 705) 1-800-265-9931 (For All Other Area Codes)

See us at booth No. 219 at the CDA Convention

Leadership as the Foundation of Your Practice

James R. Pride, DDS

On graduating from dental school, all of us were equally prepared to run a practice. We all possessed essentially the same information and expertise in the prevention, diagnosis and treatment of dental disease. What is it, then, that sets some dentists apart from others?

Why do some dentists establish extremely successful practices while others do not? Why do some dentists have constant staff turnover while others keep their team in place for 10 years? Why do some dentists enjoy a calm and controlled practice while others feel at the mercy of their patients and staff?

The answer, in a word, is leadership. Leadership is as fundamental and foundational to the practise of being a dentist as the ability to diagnose and treat dental disease.

What exactly is Leadership and Why do Dentists need it?

Leadership is the art and science of influencing other people's behavior. So how does this fit into your role of being a dentist?

Think about your work day. Most of it is spent influencing people – both patients and staff – to do what you want them to do. Our ability to provide quality dental care is dependent on our ability to get patients to accept necessary treatment, pay their bills, brush and floss their teeth, and put faith in our recommendations.

Equally important is our ability to influence, inspire and lead staff. The dental team's behavior and attitude is critically determined by the actions and disposition of the dentist.

When the dentist is fulfilling his leadership role, the results are tangible: he is in control of the practice, has strong self-esteem, a positive outlook and enjoys a substantial increase in personal income. His staff are competent, loyal, and energetic, and express a sincere interest in the future of the practice and their role in it. The patients

James R. Pride

have faith in the dentist, accept recommended treatment willingly and share their respect and appreciation of the dentist with others.

Are these observations on the effects and rewards of strong leadership just hunches? Absolutely not. They are the result of years of studying the traits of successful practices.

Many dentists feel that their practice is controlled by the economy, the area where they live, or their patients. In actuality, however, it is the dentist who decides how successful the practice will be and what direction it will take in the future. Our observations have shown that a strong leader, in a prosperous practice, possesses definite characteristics.

Leaders have a clear sense of purpose

Dentists who are leaders have a clear sense of purpose. They know exactly where they are going and what they want their businesses to achieve, both now and in the future. These dentists are not in dentistry just for the sake of earning money. Typically, they want to help change people's lives. Their ultimate purpose is to improve people's comfort, reduce their fear and improve their chances for health and happiness in their later years.

In fact, having a purpose that benefits others first is key to the financial success of these dentists. This purpose must be well-communicated to staff members, so that they can share in it and visualize how their respective jobs and the practice's goals fit together. Sharing in the practice vision will motivate the staff, because their jobs will be viewed in a broader scope (of contributing and working toward the purpose) rather than in a limited day-to-day perspective.

Leaders are risk-takers

Leaders know that reaching for success always includes the possibility of loss or failure. Progress is not a sure-fire thing. Instead, it's totally dependent on a large margin of mistakes and a small fraction of breakthroughs.

Leaders also offer support and encouragement to staff as they seek new challenges and try new systems and techniques. Support from the leader is crucial, because staff will only take the risk of trying a new procedure or method if they know that, succeed or fail, the dentist stands behind them.

Leaders are positive role models

The leader can only expect as much from his staff as he is willing to give the practice himself. Knowing this, he must act in accordance with the behavior, attitude and enthusiasm that he would like to see in his staff.

Unquestionably, the attitude of the dentist is the most contagious of all his or her attributes. If the dentist is positive, so are staff; if the dentist projects a caring attitude, so do they. In fact, the attitude of the dentist, as the practice leader, becomes a characteristic that will either attract or repel staff. If the dentist is positive, he will bring positive staff members into his practice and keep negative ones at bay. If the dentist is

motivated and success-oriented, he will find that the staff who remain with him share that positive energy, while those who do not will be weeded out.

Leaders understand their business

Good leaders have learned that they can't possibly lead something they don't understand. Therefore, they strive to fully understand the intimate details of their business. A well-controlled practice earns the respect of staff and allows the dentist to enjoy dentistry.

Leaders always accept full responsibility

The leader accepts responsibility for how the dental practice has been, is now, and will be in the future. Accepting responsibility is often one of the preliminary steps on the leadership journey. As soon as the dentist realizes that he (or she) cannot blame anyone else for the condition of his (or her) practice, he (or she)makes it possible to initiate changes. The leader says, "If it's going to be, it's up to me."

The dentist is absolutely the only permanent fixture in the practice. Everything else can change, but he (or she) is the common denominator, and anything that happens to and in the practice begins and ends with him (or her).

Leaders communicate with strong interpersonal skills

Leaders take the time to learn and practise the skills needed to be an effective communicator. The leader knows that strong communication skills are imperative in dealing with patients and staff. He (or she) also realizes that listening is the key to maintaining strong interpersonal relations. The leader knows how to offer praise and deal with confrontation to promote win-win outcomes.

Leaders are persistent

Leaders remember that setbacks can always be temporary. They set their sights on the established goal and never turn away from it. Their philosophy is reflected in the words of Winston Churchill, an incredible and persistent leader: "Whatever happens, never, never, never, never give up."

Leaders are perpetual learners

Leaders understand that they will never "know it all." They are open-minded, seeking and welcoming new information, feedback and change whenever it offers them an opportunity to improve their lives and the lives of their followers. Successful leaders are characterized by a "restless dissatisfaction" with the old way of doing things, and are always looking for ways to improve.

Most importantly, as perpetual learners, leaders accept the fact that they will never truly become perfect leaders — because leadership is never an end, but a journey. And rather than being discouraged by this, leaders find it inspiring, because their capacity for leadership is virtually unlimited. They are always improving and the extent to which they grow as a leader is totally dependent upon their willingness and dedication.

Dr. James Pride, *a renowned practice management lecturer, is the chief executive officer of the Pride Institute. He is also a consultant to the ADA Council on dental practice, and maintains an appointment as clinical professor at the University of Pacific School of Dentistry.*

The cure for complex legislation

When you require prompt, reliable advice you can trust, you need a lawyer who believes in the importance of your concerns. Tracey Tremayne-Lloyd is committed to that belief, and to providing you with the level of service you need.

Since being called to the Ontario Bar in 1984, Tracey has concentrated her practice on health law and civil litigation. As the partner in charge of our Health Services Group, she provides assistance with changes in legislation, complaints and discipline, employment problems, malpractice and liability issues, infectious disease, the confidentiality of health care information and other health law-related matters. As a member of your team, Tracey can ensure you receive the service you deserve.

Tracey Tremayne-Lloyd
(416) 597-4088

GC
GOODMAN AND CARR
BARRISTERS AND SOLICITORS

Get 30% more car and 100% fewer headaches with the CDA Leasing Program!

Getting a new car today can be a real hassle. Travelling from car lot to car lot, zealous salespeople — it can all add up to an unpleasant and time-consuming experience.

Unless you do what more and more of your colleagues are doing. Just call CDA Leasing and let them do the shopping for you. They can get any vehicle you want, North American or import. And, their fleet purchasing power, combined with the advantages of leasing, means you can drive the vehicle you want for about 30% less per month than if you financed through your bank. Keep the difference in your pocket, direct it towards other worthwhile investments, or get the next model up, with all the goodies, for the same budgeted payment!

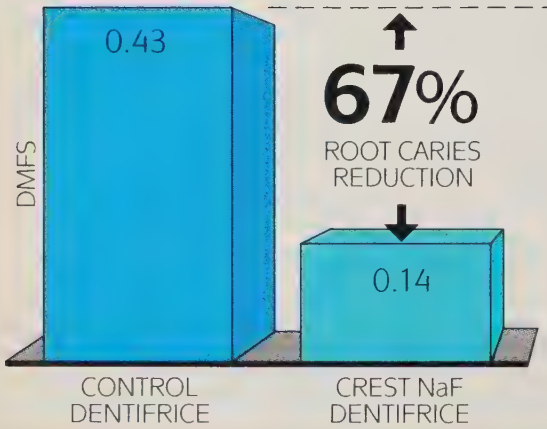
CDA Leasing will handle the whole transaction, from helping to identify the make, model, and options that best suits you, to localized purchase and delivery of your new car. They can even help you dispose of your existing vehicle. CDA Leasing documents are simple and straightforward, with terms that can be tailored to exactly meet your needs. And, you can drive all you want.
No kilometer restrictions! A guaranteed purchase option on every lease!

Make obtaining your next new vehicle headache-free and save money too — call CDA Leasing at 1-800-461-2923 today! They'll be happy to explain why dental professionals across Canada are turning to CDA Leasing.

CDA Leasing / Location ADC
7100 Woodbine Ave., Suite 400, Markham, Ont. L3R 5J2
Telephone: (416) 477-8377, Toll-Free 1-800-461-2923

See us at booth No. 646 at the CDA Convention

CREST IS THE ONLY DENTIFRICE CLINICALLY PROVEN TO HELP PREVENT FRUSTRATING ROOT CARIES



We don't have to tell you about the difficulties and frustration in treating certain root caries, but we can give you some clinical information on prevention.*

Crest with sodium fluoride has now been shown to reduce the incidence of root caries by 67% in a controlled clinical study involving 810 adults over 54 years of age.[1] And, considering a National Institute of Dental Research oral health survey reported 25% of patients over age 40 have at least one carious or filled root surface lesion,[2] that's important to know.

So give your patients the clinically proven advantage against root caries that only Crest has been shown to offer. Recommend with confidence.

References: 1. *Jensen ME, Kahout F: The effect of a fluoridated dentifrice on root and coronal caries in an older adult population* JADA *1988, 117:829-832.* **2.** *1985 NIDR adult oral survey Oral Health of United States Adults (1985-1986)*

"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

Crest

Clinically recommended for root caries

PAAB CCPP

*On exposed root surfaces

See us at booth No. 635 at the CDA Convention

Oral pathology in Canada: A survey

Thomas D. Daley, M.Sc., DDS, FRCD(C)
George P. Wysocki, DDS, PhD
London, Ont.
James H.P. Main, BDS, PhD, FDSRCS, FRC(Path), FRCD(C)
Toronto, Ont.
Stephen Ahing, DDS, MSD, FRCD(C)
Winnipeg, Man.
John G.L. Lovas, B.Sc., DDS, M.Sc., FRCD(C)
Halifax, N.S.

ABSTRACT

The Canadian Academy of Oral Pathology conducted a survey of its active members to obtain information on their demographics, professional activities and university affiliations, and to assess Canada's present and future oral pathology needs. Data were also collected on Canadian oral pathology diagnostic biopsy services. This paper reports the salient findings of the survey, and discusses their implications for the specialty of oral pathology as well as for the Canadian dental community.

SOMMAIRE

L'Académie canadienne de pathologie buccale a effectué un sondage auprès de ses membres actifs afin, d'une part, de recueillir des données d'ordre démographique ainsi que des données sur leurs activités professionnelles et leurs affiliations universitaires et, d'autre part, de déterminer les besoins actuels et futurs du Canada en pathologie buccale. On a également recueilli des données sur les services de biopsie diagnostique en pathologie buccale au Canada.

Dans cet article, on présente les résultats saillants de ce sondage et on en commente les conséquences tant pour la pathologie buccale que pour la dentisterie canadienne en général.

Introduction

Oral pathology is a relatively small, but nevertheless important, clinical dental specialty. Its stature has increased significantly over the past 40 years, reflecting the growing realization by dental clinicians that definitive diagnosis can often be attained only through laboratory and microscopic examination of tissue samples obtained from clinical oral lesions.

The expansion in our knowledge of oral diseases and the oral manifestations of systemic diseases has resulted in a greater demand by dental practitioners for both routine and more sophisticated diagnostic laboratory services. Another factor that has influenced the ongoing growth of clinical oral pathology is the increased public demand for health care professionals with advanced training to diagnose and treat the less common oral diseases.

In 1990, the Canadian Academy of Oral Pathology (CAOP) conducted a survey of its active members to collect demographic information, determine their professional activities, update information regarding Canadian oral pathology diagnostic services and assess the specialty's manpower needs. The purpose of this article is to present pertinent information concerning oral pathology in Canada.

Method

The survey consisted of 58 questions related to demographic information; professional activities, including laboratory (microscopic) oral pathology and clinical oral pathology (oral medicine); academic status; information on the oral pathology diagnostic services available in Canada from the years 1984 to 1989, inclusive; and information related to graduate programs in oral pathology from 1980 to 1990 inclusive. Each of the 34 active members of CAOP were asked to complete a questionnaire. Where appropriate, the data obtained was compared to similar information, published by Priddy,[1] on the oral pathology diagnostic services available in Canada between 1977 and 1982.

Results

Twenty-three of the 34 questionnaires were returned. The responses of a Canadian oral pathologist employed in the United States were omitted from the study. One member was retired, one was working as a periodontist and one was in private dental practice. The majority of the remaining 19 respondents were actively engaged in the specialty of oral pathology in Canada.

Demographic Information

Age: The average age of the respondents was 44.2 years. The mode was in the fourth decade, which included nine of the respondents.

Sex: There was a 3:1 male predominance.

Citizenship: All but one of the respondents were Canadian.

Degrees: All respondents had more than one degree. The most commonly-held degree was a DDS:17, followed by an M.Sc.:14. There were two MDs and six PhDs in the group.

Specialty Training: Eighteen of the respondents had specialty training in oral pathology, one in oral medicine/diagnosis and one in anatomical pathology.

Specialty Examinations: Sixteen respondents were either members or fellows of the Royal College of Dentists of Canada or diplomats of the American Board of Oral Pathology, or both. Two claimed oral medicine as their specialty, and there was one anatomical pathologist.

Primary Position: Twelve of the 14 respondents based at a dental school were tenured, two of the three based at a medical school were tenured, and two were based at a hospital.

University Affiliation

University-based oral pathologists often had multiple responsibilities within several dental and medical school departments.

Eighteen of the 19 respondents answered questions concerning their university affiliation. Sixteen were full-time faculty, with 11 of these individuals engaged full time in oral pathology and five in related departments or divisions. There were eight professors, five associate professors, four assistant professors and one instructor. Fourteen had responsibilities to oral pathology, seven to oral medicine, seven to a medical school, seven to oral diagnosis, four

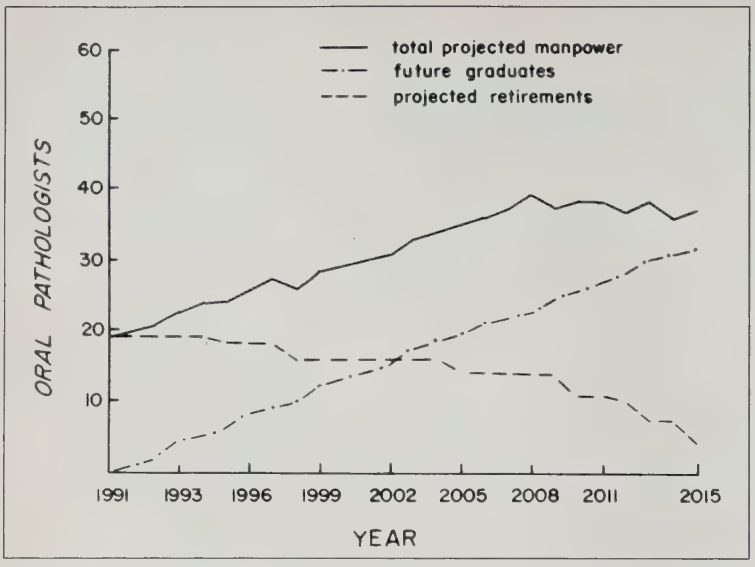


Fig. 1: The attrition rate of full- and part-time oral pathologists from 1990 to 2015. Based on the estimated retirement dates of respondents and the projected number of new graduates from U of T and UWO – assessed at 13 graduates every 10 years, from 1981 to 1990 inclusive, added annually – to illustrate the total oral pathology manpower available.

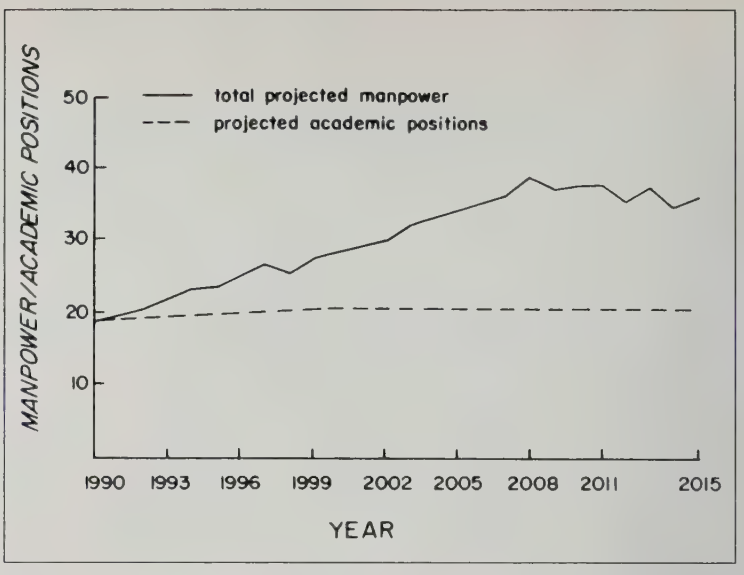


Fig. 2: Projected number of academic positions in oral pathology from 1990 to 2015, based on respondent data, are compared to the projected total available manpower from Fig. 1.

to oral radiology, and one each to periodontics and other disciplines. The respondents worked an average of 34.7 hours per week in their faculty positions, with a range of five to 60 hours.

Professional Practice Information

The oral pathologists surveyed had a variety of responsibilities, which differed from individual to individual. Most spent the majority of their time at a dental school, with some time also devoted to clinical oral pathology (oral medicine), usually in a university-associated hospital, and/or in research. Some of the respondents had significant administrative responsibilities, reflecting their senior positions in the schools. One was an anatomical pathologist who devoted most of his time to a teaching hospital. On average (recognizing considerable individual variation), the respondents spent their time as follows:

Clinical oral pathology:	18.6%
Laboratory practice:	13.1%
Teaching:	31.0%
Administration:	21.7%
Research:	15.6%
Total:	100.0%

1) Clinical Oral Pathology Practice:

Thirteen respondents practised clinical oral pathology, devoting from five to 95 per cent of their total professional time to this aspect of oral pathology. Most of their patients were referred by dentists and/or dental specialists in private practice, but a considerable proportion of referrals came from physicians and medical specialists. Some patients were seen as hospital in-patients or outpatients. Sixteen of the respondents held at least one hospital appointment.

2) Laboratory Practice:

Fourteen of the 19 respondents participated in a surgical (microscopic) pathology practice, devoting over 90 per cent of their total laboratory time to the microscopic diagnosis of submitted specimens. Most of their remaining laboratory time was devoted to cytology, with forensic odontology accounting for about one per cent of total laboratory time.

Over 90 per cent of the surgical pathology specimens submitted to these individuals for analysis were oral tissues. The remaining 10 per cent were dermatopathologic and otolaryngologic pathology tissues.

3) Teaching:

All of the respondents were engaged in educational activities. From five to 70 per cent of their total professional time was devoted to teaching, with the majority spending from 20 to 40 per cent of their time in this role.

4) Administration:

Sixteen of the respondents had administrative duties that occupied between five and 85 per cent of their total professional time.

5) Research:

Thirteen respondents spent part of their professional time doing research. The percentage of total professional time devoted to research varied from five to 60 per cent, with the majority of these respondents spending from 10 to 20 per cent of their time in research activities.

Despite this relatively small time commitment to research, the average Canadian oral pathologist published three scientific papers, one case report, one review article, one book chapter and one abstract in 1988 and 1989.

Oral Pathology Diagnostic Services

The survey respondents included the directors of five university laboratories, each of which provided biopsy services.

Administration/Staffing:

See **Table I** on the following page.

Funding:

Biopsy services were funded in a variety of ways. School 1 levied a fee of $43 per biopsy and was financially self sufficient. On the other hand, school 2 did not levy a fee for diagnostic biopsy services and operated solely on departmental funds, while the diagnostic service at school 3 received a professional fee of $12.75 per biopsy from a provin-

MAXIMIZE YOUR DENTAL OFFICE EFFICIENCY

GRAB THE POWER OF TECHNOLOGY

To keep pace in the 90's your office needs the right tools.
Tools that will help eliminate unnecessary paper work.
Tools that will help make your dental office run at optimum efficiency.
Tools that will make you money.

WITH EASY TO USE SOFTWARE FROM MAXIM

FOR THOSE WHO WANT TO TAKE THE FIRST STEP...

Max EDI — ENTRY LEVEL EDI SYSTEM

HERE'S THE SYSTEM YOU NEED TO SUBMIT CLAIMS ELECTRONICALLY!

$895

MaxEDI is designed to let the dental office take full advantage of CDAnet EDI benefits at the lowest possible cost. Did you know that when you submit a claim electronically, MaxEDI checks it completely for errors before it leaves your office, and you or your patient usually receive the cheque within three days? Or that you can expand MaxEDI to the MaxiDENT management system (below) any time you wish without re-training, and without losing time or your data?

FOR THOSE WHO ARE READY TO DO THE WHOLE THING...

COMPLETE MaxiDENT
DENTAL MANAGEMENT & EDI SYSTEM SOFTWARE

CREATE A HAPPY AND EFFICIENT DENTAL OFFICE ENVIRONMENT!

As Low As **$2995** Solo Practice

MaxiDENT makes paperwork and bottlenecks disappear, and work is easily kept current so you save time and money every day. Your staff will enjoy its simplicity, and MaxiDENT has all the functions you want: patient billing, accounting, insurance claim forms, recalls, demographics, stats, etc. Add appointment scheduling, word processing, or payables whenever you want. CDAnet EDI is included FREE. You get the over 30 reports you need to manage your practice, plus instant information on receivables, payables, bookings, histories, treatment plans...and much more. Everyone will be impressed, including patients.

10 ANNIVERSARY 10th

This is the system that
Canadian dentists from coast to coast have been
relying on for ten years to manage their clinics efficiently.
•CDAnet Certified
•DOS Based - Runs on any IBM* compatible computer
•User Friendly, Simple to Learn, Easy to Use •Satisfaction Guaranteed

SIMPLICITY
"I chose MaxiDENT because it was the only one I could sit down and use with minimal training. I'm amazed that within a short time we can operate the system." Dr. G.H.

SERVICE
"The MaxiDENT people are always there when you need them." Dr. M.D.

SOPHISTICATION
"I have so much information at my fingertips now I can find anything I want to know, even from home." Dr. R.D.

SUPPORT
"I converted from (other leading system) because I needed dependability and support." Dr. D.W.

SAVINGS
"We chose MaxiDENT because they had the best system and the best price." Dr. P.M.

IT ALL ADDS UP TO SATISFACTION

*IBM is a registered trade mark of International Business Machines

SAVE ON:	DO-IT-YOURSELF	FULL SERVICE
INSTALLATION	Unpack and install.	Our technicians will install on-site.
TRAINING	Self-training manual and tutorial	On-site professional training.
SUPPORT	Free! 6 Weeks of Hotline Support	Annual Hotline Support & Update Plan.
EQUIPMENT	If you do not already have hardware you can purchase it from us at very low prices, with software installed, ready to use. Unpack, plug in, and use!	

CALL NOW OR MAIL NOW

VISA MasterCard LEASE

1-800-663-7199
In Manitoba call (204) 453-7199
Fax (204) 453-7622

MAXIM COMPUTER SYSTEMS
1904 One Evergreen Place
Winnipeg, MB R3L 0E9

See us at booth No. 637 at the CDA Convention

TABLE I

Administration/Staffing:

The administrative bodies and professional staffing of the five biopsy services were:

School	Administrative body	Staffing
1	Department of Oral Biology (D)	F-3, P-0
2	Department of Stomatology (D)	F-2, P-0
3	Hospital Pathology Department	F-1, P-0
4	Department of Oral Pathology (D)	F-4, P-1
5	Department of Pathology (M)	F-3, P-0
	TOTAL	13 + 1 = 14

(D) = Dental School, (M) = Medical School, F = Full time, P = Part time

cial health care plan. A professional fee of $10 per biopsy was received from a cancer research foundation at schools 4 and 5, which were also supported by their respective universities.

Number of Accessions and Source:

From 1987 through 1989, the five biopsy services processed a total of 28,946 specimens. This figure is not exact, since some respondents rounded accession numbers to the nearest 50. On average, each service processed 5,789 specimens during the three-year period, or 1,930 annually. Actual figures ranged from 300 (school 3, 1987) to 4,932 (school 4, 1989). All of the biopsy services showed an increase in accession numbers with time. (There was a 6.4 per cent increase from 1987 to 1988 and a 7.8 per cent increase from 1988 to 1989.) The percentage of malignant diagnoses varied from 1.35 per cent (school 5) to 15 per cent (school 1). On average, the biopsy services received approximately one third of their specimens from dentists in private practice, about one third from oral surgeons, about a quarter from endodontists and the remainder from periodontists, physicians, pedodontists, prosthodontists and oral pathologists.

Manpower Study

CAOP members presently practising oral pathology

Of the 21 non-retired, Canadian-based CAOP members who returned their questionnaire, 11 had completed their formal residency training less than 10 years previously, while only three had done so more than 20 years earlier. On average, full-time academic oral pathologists anticipated practising for about 20 years before retirement. Part-time workers expressed similar retirement plans. The attrition rate from expected retirement is presented in **Fig. 1**.

Expected new oral pathology graduates from accredited Canadian schools

At the time of the survey, there were two universities with CDA-accredited graduate programs in oral pathology, the University of Toronto (U of T) and the University of Western Ontario (UWO).

In the 10-year period from 1981 through 1990, inclusive, 13 individuals graduated from oral pathology programs in Canada: six from U of T and seven from UWO. The directors of these programs anticipate that the number of students enrolled in oral pathology will remain constant, and they are not considering any plans to enrol more foreign students. Based on the information obtained for 1981 to 1990, the number of future graduates from these programs (13 every 10 years) is projected in **Fig. 1**, along with the total projected manpower in oral pathology from 1991 to 2015.

Positions available at Canadian academic institutions.

The respondents from the five schools offering biopsy services anticipated a future need, albeit a modest one, to increase the number of oral pathologists in Canada. Two respondents suggested that an additional person may be needed: one in about five years, and the second in about 10 years. **Fig. 2** contrasts the projected total manpower available to oral pathology from 1990 to 2015 with the existing and projected number of academic positions.

Discussion

CAOP is an organization composed of health professionals who share an interest in the diagnosis, teaching and research of diseases affecting the oral and perioral tissues. Active members, from whom the data for this survey were obtained, must have completed a CDA-accredited graduate program in oral pathology, oral medicine or oral diagnosis, and be actively engaged in one or more of these disciplines when they apply for CAOP membership. Almost all of the oral pathologists in Canada are active members of CAOP, and therefore represent an appropriate study group for the purposes of this survey.

The average total professional time that the respondents spent in patient care activities (both clinical and laboratory) and in teaching was appropriate (about 33 per cent each). However, the distinction between these two categories is not always clear, since the time spent by some oral pathologists in both clinical and laboratory practice is simultaneously educational and service-directed – dental students, dental interns, oral pathology residents and medical residents all learn from the practising oral pathologist.

Most of the respondents devoted surprisingly little time to research. The reasons for this are undoubtedly complex and include such factors as: the difficulty in attracting funds for research related directly to oral diseases; the amount of time spent on administrative work; and a lack of sufficient research training to reasonably pursue research projects involving complex techniques. Both of Canada's accredited graduate programs in oral pathology require candidates to complete at least an M.Sc. degree before graduation. In the future, it may be necessary to advise prospective students to seek a PhD degree with training in oral pathology. This will provide them access to a wider range of employment opportunities in an academic institution.

Why Get "Drilled" For $30,000 Up Front, And Hundreds Of Dollars In Monthly Maintenance Fees?

Introducing PractMan, the answer to your practice management needs, at less than half the price of other systems.

PractMan offers total practice management — including complete accounting — in a real-time, fully integrated system.

PractMan Includes...
Free Support!
No Monthly Maintenance Fees!
Free Seminars!

Practice Management

- Complete Patient Records
- Insurance Carrier Records
- CDA & MSI Insurance Forms
- Patient Receipts & Statements
- Progress Notes
- Laboratory Maintenance
- EDI Transfers
- Automatic Recalls
- Family Member Information
- Built-in ODA Fee Schedule
- Dental and Medical Histories
- Referral Tracking
- Appointments

Accounting

- General Ledger
- Accounts Receivable
- Accounts Payable
- Payroll
- Banking
- Financial Statements
- Budgeting & Financial Planning
- Complete GST
- and much more!

Current Users Say...

"I'm glad I chose PractMan, because now I am getting reports and information about my practice that I never got before."

Dr. Francois Bessay, D.D.S., Uxbridge, ON

"Finally, I've found a dental system that is simple, comprehensive, yet flexible enough to handle my individual needs."

Dr. Ronald Chafe, D.D.S., Sydney, NS

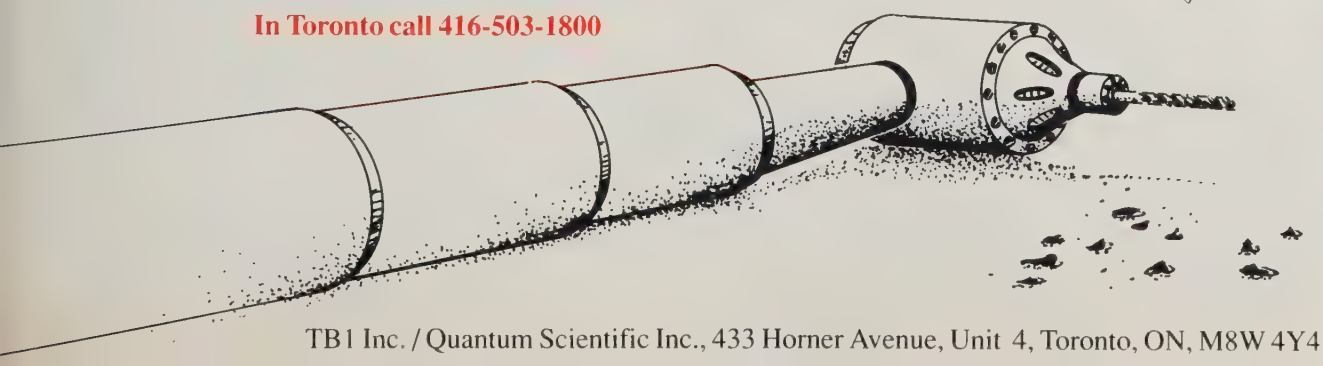
Because PractMan is based on NewViews, a leading Canadian accounting software package, you get everything you need to computerize your practice. There are no separate modules to buy!

NewViews
The Visual Approach to Accounting

TB1 INC.

Call 1-800-268-6000 for more information!

In Toronto call 416-503-1800



TB1 Inc. / Quantum Scientific Inc., 433 Horner Avenue, Unit 4, Toronto, ON, M8W 4Y4

Oral Pathology Diagnostic Biopsy Services

The basic concept of biopsy services has changed very little since Priddy's 1984 report was published.[1] Most laboratories are based at dental schools. Their funding has not changed significantly, with only a modest increase in the average fee. However, there has been a continuous growth in the use of these services in Canada, particularly by dentists in general practice. The average annual number of accessions from eight services was 845 between 1977 and 1981,[1] while the average annual number from five schools reached 1,930 between 1987 and 1989. The rate of growth was down, however. From 1977 to 1981, accessions increased 15 to 16 per cent annually,[1] but by only six to eight per cent per year, approximately, from 1987 to 1989. Priddy's figures are not directly comparable with those obtained by this study, since more biopsy services were included in his survey.

Manpower

When 1981-90 data on the attrition rate of oral pathologists currently in academic positions and the number of new oral pathology graduates from U of T and UWO are extrapolated into the near future (**Fig. 1**), and combined with information on the number of anticipated new academic positions (**Fig. 2**), it becomes apparent that there will be an oversupply of oral pathologists in Canada. Of course, many variables were not considered in this analysis, including untimely death or emigration. Despite these possibilities, an oversupply situation is predicted for the next 20 years. This is due, in part, to the relatively young age of most oral pathologists in Canada, plus the fact that the majority of them anticipate providing 20 or more years of active service, on average, before retirement.

Consequently, oral pathology graduates may need to seek employment in other institutions, such as hospital dental departments, private oral pathology/oral medicine practices in large cities, in departments of oral diagnosis or oral medicine at dental schools, as researchers at universities or in the private sector.

Based on the available information regarding the supply and demand for oral pathologists in Canada, there appears to be little justification for mounting additional graduate programs at this time. Such programs would tend to undermine the employment opportunities of the oral pathologists graduating from the country's two existing fully-accredited graduate programs.

Conclusions

This article presents data concerning the status of clinical and laboratory oral pathology in Canada. The Canadian dental profession should be aware of this information, especially with respect to the referral of patients with oral disease, or of biopsies for diagnosis, and for planning graduate training programs in oral pathology.

Acknowledgements: The authors wish to thank the active members of CAOP who responded to the questionnaire, and Ms. Kris Milne for her technical assistance.

Dr. Daley *and* **Dr. Wysocki** *are staff members of the department of pathology, University of Western Ontario, London, Ont. N6A 5C1.*

Dr. Main *is a staff member of the department of oral pathology, faculty of dentistry, University of Toronto.*

Dr. Ahing *is a staff member of the department of oral biology, faculty of dentistry, University of Manitoba.*

Dr. Lovas *is a staff member of the department of oral pathology, faculty of dentistry, Dalhousie University.*

Reprint requests to **Dr. Daley.**

References

1. Priddy, R.W. A survey of oral pathology biopsy services in Canadian dental schools. *J Canad Dent Assoc* 50:829-832, 1984.

"I'm overweight."

People who are overweight are at greater risk of developing diabetes, especially if there is a history of diabetes in the family. If you're overweight, please discuss this with your doctor.

For more information about diabetes, contact the Canadian Diabetes Association.

So much can be done.

THE Diabetes CAMPAIGN

CANADIAN DIABETES ASSOCIATION | ASSOCIATION CANADIENNE DU DIABÈTE

TYLENOL*
acetaminophen

A LOGICAL FIRST CHOICE

ACTIONS:
Acetaminophen is an analgesic and antipyretic.

INDICATIONS:
TYLENOL* acetaminophen is indicated for the relief of pain and fever. Also as an analgesic/antipyretic in the symptomatic treatment of colds.

CONTRAINDICATION:
Hypersensitivity to acetaminophen.

ADVERSE EFFECTS:
In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:
Resuscitation and supportive care must proceed as for any other potentially serious overdose. In acute overdose, serum levels of acetaminophen are meaningful in predicting those patients likely to develop serious hepatic toxicity. They must be drawn between 4 and 24 hours post overdose and the values plotted on the Matthew-Rumack Nomogram. N-acetylcysteine (N.A.C.) is a highly effective antidote for acetaminophen poisoning. Do not delay administration of N.A.C. either by parental or oral routes if the ingested dose is likely to be toxic (> 150 mg/kg ingested) or if serum levels are in the toxic range on the Nomogram. N.A.C. must be administered prior to the 24th hour post overdose to be protective. Further details on therapy of acetaminophen overdose are available by calling your regional Poison Control Centre.

DOSAGE:
Adults: 650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours.

SUPPLIED:
TYLENOL* Caplets 325 mg: Each white caplet, scored on one side and engraved "TYLENOL" other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50† and 100 caplets.

TYLENOL* Tablets 325 mg: Each round, white tablet, scored on one side and engraved "TYLENOL" other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50†, 100 and 500 tablets.

TYLENOL* Caplets 500 mg: Each white caplet engraved "TYLENOL" on one side and "500" other side, contains 500 mg acetaminophen. Available in bottles of 24†, 50 and 100† caplets.

TYLENOL* Tablets 500 mg: Each round, white tablet, engraved "TYLENOL" one side, and "500" other side contains 500 mg acetaminophen. Available in bottles of 30†, 50 and 100 tablets.

TYLENOL* Gelcaps 500 mg: Each solid capsule-shaped tablet, coated with red gelatin on one end and yellow on the other, printed "TYLENOL/500" on each gelatin coated end, contains: 500 mg acetaminophen. Available in bottles of 24† and 50 gelcaps.

†Package is child-resistant.

References:
1. Yang Mao, Canadian pediatric asthma: morbidity, mortality and hospitalization data. MES Medical Education Services (Canada) Inc.
2. Georgetown Symposium on Analgesics: Arch. Intern. Med. 141: 273-406, 1981.
3. Bradley et al: Ibuprofen vs. Acetaminophen for Knee Osteoarthritis. The New England Journal of Medicine, Vol. 325 No.2, 1991.

McNEIL

McNEIL CONSUMER PRODUCTS COMPANY
GUELPH, CANADA N1K 1A5
*Trademark

PAAB CCPP

ATA-EJ-10/91

℞ NEW NON-NARCOTIC

TORADOL®

10mg TABLETS & 30mg IM INJECTIONS (KETOROLAC TROMETHAMINE)

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

TORADOL (ketorolac tromethamine) 10 mg tablets
TORADOL IM (ketorolac tromethamine) 15 mg/mL and 30 mg/mL intramuscular injections

THERAPEUTIC CLASSIFICATION

Analgesic Agent

ACTION

Toradol (ketorolac tromethamine) is a non-steroidal anti-inflammatory drug that exhibits analgesic activity. Its mode of action is to inhibit the cyclo-oxygenase enzyme system, thereby inhibiting the synthesis of prostaglandins, and is considered to be a peripherally acting analgesic. At analgesic doses it has minimal anti-inflammatory and antipyretic activity.

Ketorolac tromethamine is rapidly and completely absorbed when administered by both the oral and intramuscular routes, and pharmacokinetics are linear following single and multiple dosing.

Steady state plasma levels are attained after one day of Q.I.D. dosing. Based only on pharmacokinetic principles, a faster attainment of the steady state plasma level might be achieved with a loading dose of about twice the maintenance dose. This occurs when the dosing interval is approximately equal to the drug's half-life.

Following oral administration, peak plasma concentrations of 0.52 to 1.31 mcg/ml occurred 35 minutes after a single 10 mg dose. The terminal plasma elimination half-life ranged between 4.1 and 6.1 hours in healthy adults, while in elderly subjects (mean age: 72 years) it ranged between 3.0 and 6.1 hours. A high fat diet decreased the rate but not the extent of absorption of oral ketorolac tromethamine, while antacid had no effect.

Following intramuscular administration, peak plasma concentrations of 2.2 to 3.0 mcg/ml occurred an average of 50 minutes after a single 30 mg dose. The terminal plasma half-life ranged between 3.8 and 6.3 hours in young adults and between 4.4 and 8.6 hours in elderly subjects (mean age: 72).

The primary route of excretion of ketorolac tromethamine and its metabolites (conjugates and the p-hydroxy metabolite) is in the urine (91.4%) and the remainder is excreted in the feces.

More than 99% of the ketorolac in plasma is protein bound over a wide concentration range.

INDICATIONS

Orally administered Toradol (ketorolac tromethamine) is indicated for the short-term management of mild to moderately severe pain, including post-surgical pain (such as general, orthopedic and dental surgery), acute musculoskeletal trauma pain and post-partum uterine cramping pain.

Intramuscular injection of Toradol is indicated for the short-term management of moderate to severe pain, including pain following major abdominal, orthopedic and gynecological operative procedures.

CONTRAINDICATIONS

Toradol (ketorolac tromethamine) should not be used where there is a known or suspected hypersensitivity to the drug. Because of the possibility of cross-sensitivity, ketorolac tromethamine should not be used in patients in whom acetylsalicylic acid (ASA) or other non-steroidal anti-inflammatory agents induce acute asthmatic attacks, urticaria, rhinitis or other allergic manifestations. Fatal anaphylactoid reactions may occur in such individuals.

Toradol (ketorolac tromethamine) also should not be used in patients with peptic ulcer or active inflammatory disease of the gastrointestinal system.

WARNINGS

Long-term administration of ketorolac tromethamine oral formulation has shown that this drug shares the risks that other non-steroidal anti-inflammatory drugs pose to patients when taken chronically. Peptic ulceration, perforation and gastrointestinal bleeding, sometimes severe and occasionally fatal have been reported during therapy with non-steroidal anti-inflammatory drugs and may occur with ketorolac tromethamine, both in the presence or absence of previous symptoms. Elderly and debilitated individuals are most susceptible to these complications, the incidence of which increases with dose and duration of treatment. Close medical supervision is recommended in patients prone to gastrointestinal tract irritation, particularly those with a history of peptic ulcer, diverticulosis or other inflammatory disease of the gastrointestinal tract. In these cases the physician must weigh the benefits of treatment against the possible hazards.

Patients taking any non-steroidal anti-inflammatory drug including ketorolac tromethamine should be instructed to contact a physician immediately if they experience symptoms or signs suggestive of peptic ulceration or gastrointestinal bleeding. These reactions can occur at any time during the treatment. If peptic ulceration is suspected or confirmed, or if gastrointestinal bleeding occurs, ketorolac tromethamine should be discontinued and appropriate treatment instituted and the patient closely monitored.

Ketorolac tromethamine is not recommended for routine use with other non-steroidal anti-inflammatory drugs because of the potential for additive side effects.

Use in pregnancy, lactation and labour: The administration of ketorolac tromethamine is not recommended during pregnancy or lactation.

Ketorolac tromethamine is not recommended for use as an obstetrical preoperative medication or for obstetrical analgesia because of the known effects of non-steroidal anti-inflammatory drugs on uterine contraction and fetal circulation.

Use in children: Safety and efficacy in children have not been established. Therefore, Toradol is not recommended for use in children under age 16.

Use in the elderly: Because ketorolac is cleared somewhat more slowly by the elderly (See PHARMACOKINETICS) who are also more sensitive to the renal effects of non-steroidal anti-inflammatory drugs, extra caution and the lowest effective dose should be used.

PRECAUTIONS

Renal effects: As with other drugs that inhibit prostaglandin biosynthesis, elevations of blood urea nitrogen (BUN) and creatinine have been reported in clinical trials with ketorolac tromethamine. Since ketorolac tromethamine and its metabolites are excreted primarily by the kidney, patients with significant impairment of renal function (serum creatinine values greater than 5 mg/dL) should not receive ketorolac tromethamine unless the expected benefits outweigh the risks. In patients with moderately impaired renal function serum creatinine values ranging from 1.9 to 5.0 mg/dL, the rate of ketorolac clearance was reduced to approximately half of normal. The total daily dose of ketorolac tromethamine should be reduced by half in such patients. The disposition of ketorolac in dialysis patients has not been studied.

Patients who are volume depleted because of blood loss or severe dehydration may be dependent on renal prostaglandin production to maintain renal perfusion and therefore glomerular filtration rate. In such situations the use of drugs which inhibit prostaglandin synthesis might be expected to further decrease renal blood flow. Caution is advised if ketorolac tromethamine is used in such circumstances. Close monitoring of urine output, serum urea and serum creatinine is recommended until the patient is normovolemic.

Hepatic effects: Meaningful elevations (greater than 3 times normal) of serum transaminases (glutamate pyruvate (SGPT or ALT) and glutamic oxalacetic (SGOT or AST)) occurred in controlled clinical trials in less than 1% of patients. If clinical signs and symptoms consistent with liver disease develop, or if systemic manifestations occur (e.g., eosinophilia, rash, etc.), ketorolac tromethamine should be discontinued. Patients with impaired hepatic function from cirrhosis do not have any clinically important changes in ketorolac tromethamine clearance. Studies in patients with active hepatitis or cholestasis have not been performed.

Fluid and electrolyte balance: Fluid retention and edema have been observed in patients treated with Toradol. Therefore, as with many other non-steroidal anti-inflammatory drugs, the possibility of precipitating congestive heart failure in elderly patients or those with compromised cardiac function should be borne in mind. Toradol should be used with caution in patients with cardiac decompensation, hypertension or other conditions predisposing to fluid retention.

Hematologic effects: Ketorolac tromethamine inhibits platelet function and may prolong bleeding time. It does not affect platelet count, prothrombin time (PT) or partial thromboplastin time (PTT). Patients who have coagulation disorders or are receiving drug therapy that interferes with hemostasis should be carefully observed when ketorolac tromethamine is administered. Unlike the prolonged effects from aspirin, the inhibition of platelet function by ketorolac tromethamine is normalized within 24 to 48 hours after the drug is discontinued.

Blood dyscrasias associated with the use of non-steroidal anti-inflammatory drugs are rare, but could occur with severe consequences.

Infection: In common with other anti-inflammatory drugs, ketorolac tromethamine may mask the usual signs of infection.

Drug Interactions: Toradol (ketorolac tromethamine) is highly bound to human plasma protein (mean 99.2%) and binding is independent of concentration.

Prothrombin time should be carefully monitored in all patients receiving oral anticoagulant therapy concomitantly with ketorolac tromethamine.

Ketorolac tromethamine does not alter digoxin protein binding.

In vitro studies indicated that at therapeutic concentrations of salicylates (300 mcg/mL), the binding of ketorolac tromethamine was reduced from approximately 99.2% to 97.5%. Therapeutic concentrations of digoxin, warfarin, acetaminophen, phenytoin, tolbutamide and piroxicam did not alter ketorolac tromethamine protein binding. Since ketorolac tromethamine is a highly potent drug and present in low concentrations in plasma, it would not be expected to displace other protein-bound drugs significantly.

There is no evidence in animal or human studies that ketorolac tromethamine induces or inhibits the hepatic enzymes capable of metabolizing itself or other drugs. Hence, it would not be expected to alter the pharmacokinetics of other drugs due to enzyme induction or inhibition mechanisms.

Ketorolac tromethamine mildly reduces the diuretic response to furosemide in normovolemic subjects. Inhibition of renal lithium clearance leading to an increase in plasma lithium concentration and potential lithium toxicity has been reported with some non-steroidal anti-inflammatory drugs. The effect of ketorolac tromethamine on lithium plasma levels has not been studied.

Concomitant administration of methotrexate and some non-steroidal anti-inflammatory drugs have been reported to reduce the clearance of methotrexate, enhancing the toxicity of methotrexate. The effect of ketorolac tromethamine on methotrexate clearance has not been studied.

There is limited experience on concurrent administration with morphine. Available information shows no evidence of adverse interactions. The extent of a possible narcotic-sparing effect of ketorolac tromethamine is currently under investigation.

ADVERSE EFFECTS

Toradol tablets: The incidence of adverse reactions in approximately 600 patients and subjects receiving short-term oral therapy (less than 2 weeks) with Toradol (ketorolac tromethamine) are listed below. The most common adverse effects include Gastrointestinal: dyspepsia (2%), gastrointestinal pain (2%), nausea (2%). Central nervous system: headache (2%), dizziness (2%).

The following adverse events are rare but have been reported (less than 1%): Gastrointestinal: flatulence, gastritis Respiratory: dyspnea. Dermatologic: urticaria, rash, pruritus. Metabolism/nutritional: edema. Body as a whole: asthenia. Hemic and lymphatic: purpura. Musculoskeletal: myalgia.

Toradol IM: The adverse reactions listed below were reported to be probably related to Toradol IM in clinical trials in which patients received up to 20 doses of 30 mg of intramuscularly administered Toradol over a period of up to five days.

Incidence between 3 and 9%: Gastrointestinal: nausea, dyspepsia, gastrointestinal pain. Central nervous system: drowsiness.

Incidence between 1 and 3%: Gastrointestinal: diarrhea. Central nervous system: dizziness, headache, sweating. Body as a whole: edema. Injection site pain was reported by 2% of patients in multi-dose studies (vs. 5% for morphine control group).

Incidence 1% or less: Gastrointestinal: constipation, flatulence, gastrointestinal fullness, liver function abnormalities, melena, peptic ulcer, rectal bleeding, stomatitis, vomiting. Body as a whole: asthenia, myalgia. Cardiovascular: vasodilatation, pallor. Hemic and lymphatic: purpura. Nervous system: dry mouth, nervousness, paresthesia, abnormal thinking, depression, euphoria, excessive thirst, inability to concentrate, insomnia, stimulation, vertigo. Respiratory: dyspnea, asthma. Urogenital: increased urinary frequency, oliguria. Dermatologic: pruritus, urticaria. Special senses: abnormal taste, abnormal vision.

OVERDOSAGE

The absence of experience with acute overdosage precludes characterization of sequelae and assessment of antidotal efficacy at this time. In a gastroscopic study of healthy subjects, daily doses of 360 mg given over an 8-hour interval for each of five consecutive days (3 times the highest recommended dose) caused abdominal pain and peptic ulcers which recovered after discontinuation of dosing.

DOSAGE AND ADMINISTRATION

Adults: Dosage should be adjusted according to the severity of the pain and the response of the patient.

Oral: The usual oral dose of Toradol (ketorolac tromethamine) is 10 mg every 4 to 6 hours for pain as required. Doses exceeding 40 mg per day are not recommended.

Toradol is recommended for short-term use only i.e. for a maximum of a few weeks.

Parenteral: The recommended usual initial dose is 30 mg. Subsequent dosing may be 10 mg to 30 mg every 4-6 hours as needed to control pain. A lower initial dose may be suitable for patients under 50 kg in body weight, over age 65 years and/or with less severe pain at baseline. In the initial post-operative period, more frequent dosing (e.g., every 2 hours) may be employed, but the total daily dose should not exceed 120 mg. Dose above 120 mg could cause drug toxicity (see Warnings & Precautions). If supplemental analgesia is required, a concomitant low dose of opiate can be used

The administration of continuous multiple daily doses of Toradol IM should not exceed 5 days for Injection dosing. There has been limited experience with dosing for more than 5 days since the vast majority of patients have transferred to oral medication or no longer required analgesic therapy after this time.

Directions for use: Insert the plunger into the syringe barrel and thread it onto the screw. WITHOUT REMOVING THE NEEDLE GUARD, apply quick, firm pressure to the plunger to break the inner seal (you will feel it let go). Pull back on the plunger slightly to relieve pressure. Remove the needle guard by twisting as you pull. Use the unit as you would a normal syringe. Dispose of properly.

CONVERSION FROM PARENTERAL TO ORAL THERAPY

Toradol tablets may be used either as monotherapy or as follow-on therapy to parenteral ketorolac. In the latter case, the total combined daily dose of ketorolac should not exceed 120 mg on the day the change of formulation is made, this includes a maximum of 4 of the 10 mg tablets.

Toradol (ketorolac tromethamine) is a Schedule F drug.

COMPOSITION

Toradol Tablets: Each Toradol tablet contains ketorolac tromethamine, the active ingredient, with microcrystalline cellulose, lactose and magnesium stearate. The coating suspension contains hydroxy-propyl-methylcellulose, titanium dioxide and polyethylene glycol.

Toradol IM: Toradol IM is available for intramuscular administration as: 15 mg in 1 mL (1.5%), or 30 mg in 1 mL (3%) of ketorolac tromethamine in sterile solution. The 15 mg/mL solution contains 10% (w/v) alcohol, USP, and 6.68 mg sodium chloride in sterile water. The 30 mg/mL solution contains 10% (w/v) alcohol, USP and 4.35 mg sodium chloride in sterile water. The pH is adjusted with sodium hydroxide or hydrochloric acid. The sterile solutions are clear and slightly yellow in colour.

STABILITY AND STORAGE RECOMMENDATIONS

Toradol Tablets: Store at room temperature. The blister package tablets should be protected from light

Toradol IM: Store at room temperature with protection from light.

AVAILABILITY OF DOSAGE FORMS

Toradol (ketorolac tromethamine) is available as 10 mg white round film coated tablets with one side printed in red with TORADOL inside a bold T and the other side with Syntex. Toradol (ketorolac tromethamine) 10 mg tablets are available in bottles of 100 and 500 tablets.

Toradol IM is available in 1 mL syringes containing 15 or 30 mg/mL of ketorolac tromethamine.

Product Monograph available on request.

REFERENCES

1. TORADOL Product Monograph, Syntex Inc., Feb. 1991. **2.** Compendium of Pharmaceuticals and Specialties, 26th Edition, 1991. **3.** Yee JP et al. *Pharmacother* 1986; 6(5):253-61. **4.** Brown CR et al. *Pharmacother* 1990; 10(6 Pt 2):45S-49S. **5.** O'Hara DA et al. *Clin Pharm Ther* 1987; 41(5):556-61. **6.** Fragen RJ. Data on File, Syntex Inc., Document CL3837, 1987. **7.** Cherry C et al. Data on File, Syntex Inc., Document CL3835, 1987. **8.** Stanski DR et al. *Pharmacother* 1990; 10(6 Pt 2) 40S-44S. **9.** Data on File, Syntex Inc., Document #90027-1, 1989. **10.** Forbes JA et al. *Pharmacother* 1990; 10(6 Pt 2): 77S-93S. **11.** Forbes JA et al. *Pharmacother* 1990; 10(6 Pt 2): 94S-105S. **12.** Mehlisch D et al., Data on File, Syntex Inc., Document CL3686. **13.** Data on File, Syntex Inc., Document #90027-3, 1989. **14.** Rooks II WH et al. *Pharmacother* 1990; 10(6 Pt 2): 30S-32S. **15.** Mangioni C et al. Data on File, Syntex Inc., Document CL4899, 1989. **16.** Hutteman W et al. Data on File, Syntex Inc., Document CL4882, 1989. **17.** Nedelman P et al. Data on File, Syntex Inc., Document CL3635, 1986. **18.** Cutting CJ et al. Data on File, Syntex Inc., Document CL4740, 1989. **19.** Diebschlag W, Nocker W, Data on File, Syntex Inc., Document CL5468, 1989. **20.** Molinie J et al. Data on File, Syntex Inc., Document CL4624, 1988. **21.** Herrera JMC et al. Data on File, Syntex Inc., Document CL4886, 1989. **22.** Bloomfield S et al. Data on File, Syntex Inc., Document CL3658, 1986. **23.** Sunshine A. Data on File, Syntex Inc., Document CL3674, 1986.

Toll-free Toradol Information Hotline: 1-800-561-5481.

SYNTEX®
Syntex Inc.* Mississauga, Ont./Montréal (Qué.)
*Registered user of all ® trademarks.

PAAB CCPP MEMBER PMAC

Upjohn®
The Upjohn Company of Canada
Don Mills, Ontario

Vital tooth bleaching: Review and current status

Laura Tam, DDS
Toronto, Ontario

ABSTRACT

Vital tooth bleaching refers to the clinical application of a chemical solution to a tooth surface in order to achieve a lightening effect. This article reviews the available literature to address the following questions: What are the methods of vital bleaching? How does vital bleaching work and is it effective? What effects are there on the teeth, dental restorative materials, soft tissues and systemic health?

The techniques used in the application of dentist-applied and patient-applied bleaching systems are described. Generally, vital tooth bleaching has been found to be effective, however, relapse does occur. The literature suggests that bleaching agents may have transient effects on the tooth itself, and may affect some dental materials. Soft tissues exposed to hydrogen peroxide for prolonged periods show changes consistent with inflammation or hyperplasia. Hydrogen peroxide may also potentiate the carcinogenic effect of known carcinogens. However, more clinically relevant studies are needed.

Until long-term safety data becomes available, the dental practitioner should approach the use of in-home bleaches with caution. The U.S. Food and Drug Administration (FDA) recently classified these products as "new drug." However, dentist-applied bleaching gel systems are a viable alternative and deserve further consideration. They are simple to use, require little armamentarium, and limit the exposure of the bleaching agent to the teeth only.

Vital tooth bleaching refers to the clinical application of a chemical solution to a tooth surface in order to achieve a lightening effect. There was a resurgence of interest in vital bleaching with the recent introduction of the in-home bleaching technique. However, the proliferation of commercial in-home bleaching systems in the marketplace, and the increasing awareness of the technique by both dentists and patients, have outpaced current research efforts. As a result, there are many unanswered questions relative to the safety and use of in-home bleaching systems.

This article reviews the available literature to address the following questions:

1. What is the method of vital bleaching?

2. How does vital bleaching work and is it effective?

3. Is vital bleaching safe? What effects are there on teeth, dental restorative materials and systemic health?

SOMMAIRE

Le blanchiment vital des dents est une opération consistant à appliquer une solution chimique à la surface des dents afin d'en rendre la coloration plus claire. Dans cet article, on passe en revue les écrits qui se penchent sur les questions suivantes: Quelles sont les méthodes de blanchiment vital? Comment le blanchiment vital s'opère-t-il? Est-il efficace? Quelles en sont les conséquences pour les dents, les matériaux de restauration, les tissus mous et la santé en général?

On décrit donc les techniques dont les dentistes au cabinet et les patients chez eux se servent pour appliquer les blanchissants. En général, le blanchiment vital des dents se révèle efficace, mais dans certains cas il faut le recommencer. Les publications suggèrent que les agents de blanchiment peuvent avoir des effets passagers sur les dents elles-mêmes et endommager quelque peu les matériaux dentaires. Les tissus mous exposés à l'eau oxygénée pour de longues périodes de temps révèlent des changements semblables à ceux qu'on observe dans les cas d'inflammation et d'hyperplasie. L'eau oxygénée peut également augmenter le pouvoir cancérigène des carcinogènes connus. Cependant, il faudrait d'autres études cliniques plus pertinentes sur le sujet.

Tant qu'on ne disposera pas de données sur la sûreté du blanchiment vital des dents à long terme, le praticien dentaire doit faire preuve de prudence avec les blanchissants que les patients utilisent chez eux. Aux Etats-Unis, la Food and Drug Administration (FDA) a classé ces produits parmi les «drogues nouvelles». Cependant, les blanchissants sous forme de gel appliqués par les dentistes constituent une solution viable et méritent qu'on les étudie davantage. Ils sont simples à utiliser, exigent peu d'instruments et restreignent aux dents seulement l'exposition à l'agent de blanchiment.

Dans cet article, on passe en revue les écrits qui se penchent sur les questions suivantes:

1. Quelles sont les méthodes de blanchiment vital des dents?

2. Comment le blanchiment s'opère-t-il? Est-il efficace?

3. Le blanchiment vital est-il sûr? Quelles en sont les conséquences pour les dents, les matériaux de restauration, et la santé en général?

Method of Vital Bleaching

Dentist-Applied (In Office) Vital Bleaching

The primary elements in this technique are: isolation, bleaching agent and heat application[1-3] (**Figs. 1-3**). Thirty to 35 per cent hydrogen peroxide is the primary bleaching agent. It decomposes rapidly, and must be stored at cool temperatures and away from light. As hydrogen peroxide is caustic to soft tissues, rubber gloves should be worn while handling bleaching agents and during the bleaching procedure. It is critical, as well, to use a well-placed rubber dam — sealed at the gingival margins with floss ligatures or varnish — and an applied gel-like barrier to protect the oral mucosa.

In vital bleaching, heat is used to accelerate the bleaching reaction of hydrogen peroxide. Gauze soaked in hydrogen peroxide is placed on an individual tooth and, depending on patient tolerance, a heating instrument set at a

Fig 1: In the dentist-applied (in office) vital bleaching system, the soft tissue must be protected from the bleaching agent. Some bleaching systems provide a gel-like material (above), but a well-placed rubber dam is the most effective barrier.

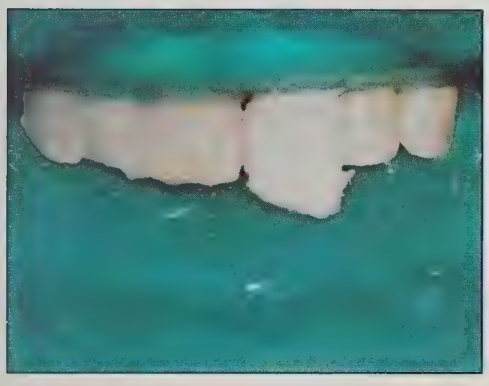


Fig. 2: A 35 per cent hydrogen peroxide solution is then applied to the tooth surface via a gauze and heated with light or a bleaching instrument (tooth #11). Alternatively, a freshly-mixed 35 per cent hydrogen peroxide gel can be syringed onto the teeth (teeth 21, 22, 23).

temperature of 110°F to 140°F is applied intermittently to the gauze for a period of one to three minutes. Alternatively, a bleaching light may be used. The teeth to be bleached are covered with a hydrogen peroxide-soaked gauze for 30 minutes, with the light set approximately 13 inches from the teeth. This procedure may be repeated as required at one- or two-week intervals.

Enamel Pretreatment

Pumice or an organic solvent such as ether, ethanol, acetone or chloroform may be used to clean the tooth surface prior to bleaching. More recently, the use of phosphoric acid etching has been advocated to enhance the bleaching effect.[4] However, the question of whether enamel should be treated prior to the application of the bleaching agent remains unresolved.

Pretreatment acid etching results in surface enamel loss and roughening. At three to six weeks, in an *in vivo* study of 10 patients, Hall[5] detected no clinical

Fig. 3: The same patient three months after bleaching. The two dentist-applied bleaching techniques (teeth 11, 12, 13 vs teeth 21, 22, 23) appeared to be equally effective.

improvement in the bleaching effect obtained in enamel pretreated for 20 seconds with 37 per cent phosphoric acid prior to the application of 35 per cent hydrogen peroxide for 30 minutes, versus the bleaching effect obtained in the non-pretreated enamel on the other side of the arch. In light of the known effects of enamel etching, and given the lack of documentation in support of the premise that bleaching effect is enhanced by a pretreatment etch, Hall argued against the use of a pre-bleach etch.

Bleaching Gel

A new in-office bleaching method has been introduced that does not require the use of a heating instrument or light. This method involves the use of a bleaching gel formulated from 35 per cent hydrogen peroxide and silicon dioxide powder. The gel's consistency allows it to remain in intimate contact with the isolated tooth surfaces, where it acts as a "cold" source of hydrogen peroxide. Multiple gel treatments, each requiring 20 or 30 minutes to complete, may be necessary.

Patient-Applied (In-Home Bleaching) Technique

The basic elements of this technique include a bleaching gel and a patient-applied arch tray[6] (**Fig. 4**). A 10-percent carbamide peroxide gel is the primary bleaching agent. Also known as urea peroxide or urea hydrogen peroxide, this solution was originally used for plaque and gingivitis control in periodontal patients (Proxigel, Reed & Carnrick; Gly-Oxide, Marion Laboratories). Lightening of the teeth occurred as a side effect. The first published report on the use of this material as a bleaching agent appeared in 1989,[7] when carbamide peroxide was placed in

Fig. 4: In the patient-applied (In-home bleaching) technique, a 10 per cent carbamide peroxide gel is placed within a tray to be worn by the patient for a recommended period of time. The soft tissue is not protected from exposure to the bleaching agent.

Fig. 5: This photograph was taken immediately after a bleaching session using a pretreatment acid-etch and hydrogen peroxide. Much of this immediate color change can be attributed to tooth dehydration and the acid-etching. The teeth will lose much of this initial lightening effect after rehydration and reversal of the acid-etch chalkiness occur.

a mouth guard worn by a patient.

The specificities of the in-home bleaching method have yet to be established. They now vary depending on the operator and the commercial product being used. In general, the carbamide peroxide is placed into an arch tray that the patient wears for a number of hours each day over the course of one to three weeks. The tray should be vacuum-formed from thin (.020) or thicker mouth guard-type tray material, and trimmed to closely follow the gingival margin. A spacer should be used during the tray's fabrication to allow room for the bleaching gel.

Ploeger et al[8] found that if a low-viscosity bleaching agent was used, the amount of carbamide peroxide remaining in the tray after 30 minutes, measured spectrophotometrically, was almost nil. In contrast, four to 20 per cent of the bleaching agent remained in the tray after two hours when a higher viscosity gel was used. Aldana et al[9] deter-

Keep Smiling in '92

CDA offers everything you need to keep your patients smiling in '92!
Buttons. Balloons. Magnets and mugs.
Appointment cards and T-shirts too.
A new colouring book for kids...
And a whole lot more.

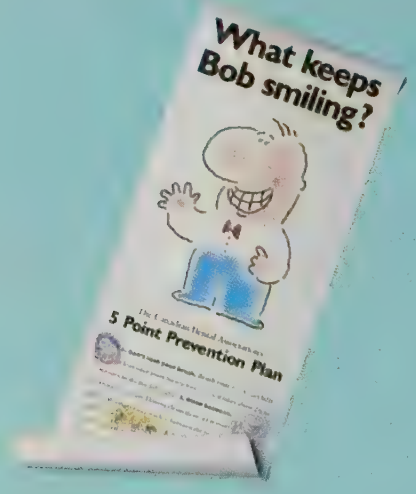
Order your Keep Smiling materials today.

If you're a CDA or CDHA member, you can save 25% — and that's something to really smile about.

Bob Poster

Size 12 1/4" x 36"

CDA members: $0.75
Regular price: $1.00



T-Shirt

One size—Extra Large.

CDA members: $9.75
Regular price: $13.00

Golf Shirt

Available in S, M, L, XL.

CDA members: $27.00
Regular price: $36.00

Sweatshirt

Also available in S, M, L, XL

CDA members: $30.00
Regular price: $40.00

Bob's Radio Commercial

A 30-second public service announcement for use by all local and regional media relations organizers during Dental Health Month.

CDA members: $10.00
Regular price: $13.50

Display Balloon

A BIG balloon - it inflates to 40 inches around - for displays and exhibits.

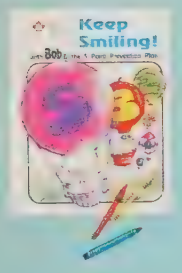
CDA members: $11.75
Regular price: $15.75

Celebration Poster

More than a poster - an original work of art! Created by renowned Canadian illustrator John Fraser, this full-colour print captures the spirit and warmth of "A Celebration of the Smile". It'll look great in your office or waiting room.
Approx. 18" x 24"

CDA members: $0.95
Regular price: $1.30

Colouring Book with Crayons



This brand new children's colouring book is 16 pages full of pictures to colour and games to play. It is both fun and educational. Ideal for the waiting room, or as a take-home gift.
(Includes colourful crayon set.)

CDA members: $2.80
Regular price: $3.75

Bob Ceramic Mug

New ceramic mug, emblazoned with Bob and the CDA logo.

CDA members: $8.25
Regular price: $11.00

Table Talker

Put it on a waiting room table and on your office desk. Display it in the reception area. Give it to patients as a jumbo reminder of the Five Point Prevention Plan.
Folds to 3 1/2" by 8".

CDA members: $0.55
Regular price: $0.75

BIG Bob - Special Order

And we mean BIG. He stands 5'3" tall. Put him in your waiting room and watch the big smiles he gets. This special order item will be made available if CDA receives sufficient orders.

CDA members: $75.00
Regular price: $100.00

Balloons

Package of 50

CDA members: $11.25
Regular price: $15.00

Buttons

Package of 25

CDA members: $10.50
Regular price: $14.00

Celebration Planning Kit

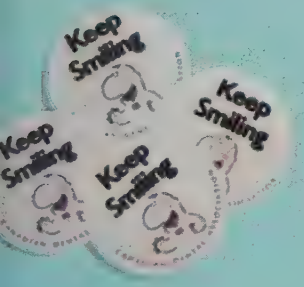
For community organizers. This kit is brimming with ideas, activities and tips that will help you bring a Celebration of the Smile to your community.

CDA members: $4.75
Regular price: $6.50

Magnetic Bob

Such an attractive character! Give him to patients to stick on refrigerators and filing cabinets. Single unit or package of 25

CDA members: $0.55/1; $10.50/25
Regular price: $0.75/1; $14.00/25



Stickers

A perfect giveaway to young patients (and to the young at heart!). Roll of 100

CDA members: $5.98
Regular price: $7.98

Appointment Cards

With the 5 Point Prevention Plan and space for the patient's next visit. Fits in their wallet.

CDA members: $25.00
Regular price: $34.00

Bob Live

Bob has come to life as a lovable full-size costumed mascot. He'll bring smiles and excitement to activities and events in your office or your community. The Bob costume is available for rental.

$100.00/Day $200.00/Week $1500.00/Year

Bob, the 5 Point Prevention Plan and the Keep Smiling message are part of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Order your Keep Smiling materials today by mail or call our toll free numbers.

1. **By mail:** Complete and mail the attached form along with your cheque, money order or VISA/MC number.
2. **By phone:** To place your order call:
   1-800-267-6354 (Western Canada, Nfld. and Lab.)
   1-800-267-6364 (Eastern Canada)
   Please have your VISA or MasterCard number and expiry date ready. Please call during business hours 8:30 to 4:30 Eastern time, Monday to Friday.

Shipping and handling: All orders will be sent by first class mail with prepaid shipping charges as follows: under $29.99 = $4.50; $30.00-$99.99 = $7.00; over $100.00 = $11.50; over $250.00 call our toll-free numbers for applicable charges.

Please print or type
Complete and mail to: **The Canadian Dental Association**
Order Section, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

Name:

Address: Suite #:

City: Province: Postal Code:

Telephone: ( ) CDA or CDHA Membership Number:

_____ Cheque / money order enclosed _____ VISA _____ MasterCard

Number: Expiry date:

Item	Quantity	Unit $. Mem.	Unit $. Regular	Total
Appointment Card *(Pkg. 500)*		25.00	34.00	
Balloons *(Pkg. of 50)*		11.25	15.00	
Bob Ceramic Mug		8.25	11.00	
Bob Poster		0.75	1.00	
Buttons *(Pkg. of 25)*		10.50	14.00	
Celebration Planning Kit		4.75	6.50	
Celebration Poster		0.95	1.30	
Colouring Book *(with crayons)*		2.80	3.75	
Display Balloon		11.75	15.75	
Golf Shirt* S M L XL		27.00	36.00	
Live Bob		100./day 200./wk 1500./yr		
Magnetic Bob		0.55/1; 10.50/25	0.75/1; 14.00/25	
Radio Commercial		10.00	13.50	
Stickers *(Pkg. of 100)*		5.98	7.98	
Sweatshirt* S M L XL		30.00	40.00	
T-Shirt		9.75	13.00	
Table Talker		0.55	0.75	
Special Order *(Only available if sufficient orders are received)*				
Display Bob		75.00	100.00	

*Please circle shirt size

Please allow 4-6 weeks for delivery

DENTAL HEALTH Good For Life

Total Order	
Shipping	
(Total Order + Ship.) = **Sub Total**	
Please add **7% GST** (No.:R106845209) to Sub Total	
Ont. Residents please add **8% PST** to Sub Total	
TOTAL	

FINALLY THERE'S A REALLY EFFECTIVE SOLUTION FOR SENSITIVE TEETH!

NEW SENSODYNE® DESENSITIZING SOLUTION.

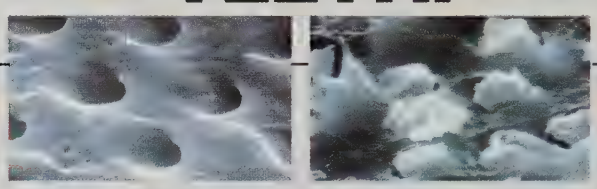
Stops pain fast in the office.

New Sensodyne Desensitizing Solution is the fast, easy, really effective way to treat sensitive teeth right at chairside. A single application takes only 60 seconds, provides relief in minutes and lasts for months.

ON-THE-SPOT RELIEF FOR SENSITIVE TEETH.

Continues relief at home.

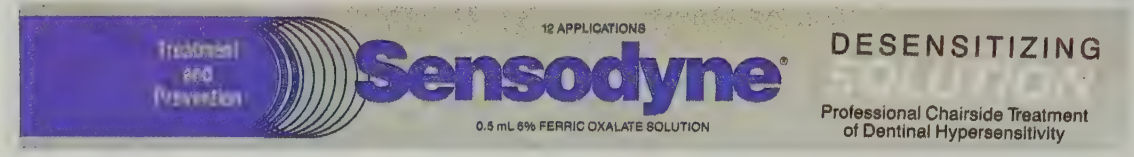
Recommend regular brushing with Sensodyne-F – the most trusted home treatment for sensitive teeth. Sensodyne Desensitizing Solution and Fluoride Toothpaste have complementary modes of action that enhance and prolong relief.



Before Treatment

After Treatment
Ferric Oxalate* obturates open dentinal tubules.

In the office and at home ***Sensodyne®***



*See your Block Drug rep for clinicals.

Complete care for sensitive teeth.

1-800-268-5747

BLOCK DRUG COMPANY (CANADA) LTD.
7600 Danbro Cres., Mississauga, Ontario L5N 6L6

TABLE I:
Bleaching Products

Armamentarium		
New Image Bleaching Light		Union Broach
Bleaching Instrument		Union Broach
Dentist Applied (In Office) Systems		
Superoxol	35% HP solution	Union Broach
Starbrite	35% HP gel	Healthco/Stardent
Accel	35% HP gel	BriteSmile Inc.
Quikstart	35% CP	Den-Mat
Patient Applied (In-Home Bleach) Systems		
BriteSmile	2, 5, and 10% HP	BriteSmile Inc.
Natural White	6% HP	Aesthete Laboratories
Denta-Lite	10% CP	Challenge Products
Dentl-Bright	10% CP	Cura Pharmaceutical
Nu-Smile	15% CP	Union Broach
Opalescence	10% CP	Ultradent
Rembrandt Lighten	10% CP	Den-Mat
Ultra Lite	10% CP	Ultra Lite Inc.
White & Brite	10% CP	Omnii International

mined that carbamide peroxide would mix with saliva *in vivo*, thus inactivating (salivary peroxidase) and diluting the peroxide over time. They found that only 11 per cent of the initial peroxide activity remained in the tray after 15 minutes of wear. Therefore, the use of highly-viscous bleaching gel, which should be changed every hour, is recommended. It would be of little benefit to wear the tray overnight as significant loss of the active ingredient occurs with time.

The manufacturers of in-home bleaching systems generally provide various extras with these products, such as fluoride rinses, pre- and post-bleaching treatments, tray fabrication material, soft-tissue protection material, marketing literature and patient consent forms. The optimal methods for using these features, or whether they are needed at all, are still undetermined. **Table I** contains a list of the bleaching products and systems currently available.

Mechanism of Vital Bleaching

The active bleaching ingredient in carbamide peroxide is hydrogen peroxide. A 10 per cent carbamide peroxide gel would be equivalent, in effect, to a 3.3 per cent hydrogen peroxide solution.[10]

Hydrogen peroxide acts as an oxygenator and an oxidant. Its bleaching effect, although not exactly determined, has been attributed to both these qualities.[11-13] Hydrogen peroxide will release oxygen, especially in the presence of peroxidase and catalase,[14] and hence will effervesce. However, it is thought that oxygenation is not the primary mechanism for bleaching.[13] An oxidant is any molecular species with an unpaired electron on its outer orbit, and therefore has a strong tendency to interact with other electrons to form an electron pair. Hydrogen peroxide releases free radicals which act as oxidants. It is hypothesized that, during the bleaching process, these oxidants react with and cleave the bonds to the chromophores – the color radicals on which the color of a substance depends.[15,16] Thus, the pigments in enamel and dentin are altered and a lightening effect is achieved.

Effectiveness of Vital Bleaching

Numerous studies have reported successes with the dentist applied bleaching technique.[1,3,4,17,18] However, relapses did occur, and much of the initial transient lightening effect is attributed to tooth dehydration and the pretreatment acid-etch (**Fig. 5**). There are fewer studies available at this time to document the color changes associated with the home-bleaching technique,[7,19,20] but the general consensus is that this technique results in a definite improvement in shade.[13,21]

Rosenstiel et al[22,23] used a colorimeter and 30 per cent hydrogen peroxide bleach to quantitatively measure the color changes associated with vital bleaching. They found that acid-etched extracted incisors treated for 30 minutes with hydrogen peroxide were significantly lighter than those that were acid-etched only. Rosenstiel et al also measured, *in vivo*, the darkening of bleached incisors over time. They reported that 50 per cent of the immediate lightening effect remained after one week, and only 14 per cent remained after six to nine months. These results suggest that hydrogen peroxide alone is an effective bleaching agent, but significant darkening occurs with time following one bleaching episode. Generally, multiple bleaching appointments are beneficial. The effectiveness of bleaching is an individual response that cannot be predicted.

Safety of Vital Bleaching

The vital bleaching process affects both teeth and restorative materials. Questions remain about the safe use of the bleaching agent with respect to its soft tissue and systemic effects.

Effects on Teeth: A patient may expect postoperative discomfort for the first day following a dentist-applied bleaching appointment.[1,4] Much of the pulpal discomfort associated with vital bleaching has been attributed to the application of heat rather than to the bleaching solution itself.[15] Thus, postoperative sensitivity is not usually associated with the new dentist-applied bleaching gel technique or in-home bleaching. Heat may cause the liquid in the dentinal tubules to expand, resulting in an outward flow of odontoblast processes, a decrease in pulpal circulation, pulpal inflammation, and irregular dentin formation.[24-27] Hydrogen peroxide, by itself, has been shown to inhibit pulpal enzyme activity and may penetrate into the pulp in very minute concentrations.[25,28,29] The pulpal effects associated with vital bleaching, however, are generally thought to be transient and reversible.

The presence (or absence) of chemical or structural changes in enamel and dentin secondary to hydrogen peroxide application has been difficult to ascer-

tain. Ruse et al[30] demonstrated an increase in enamel nitrogen content after hydrogen peroxide treatment, but no other significant chemical changes were detected under XPS and SIMS analyses. Only slight morphological changes of rat enamel and dentin have been demonstrated under the SEM after a hydrogen peroxide bleaching procedure.[15]

Torneck et al[31,32] compared the shear bond strengths of resin bonded to bleached and unbleached extracted bovine incisors. They reported significantly decreased bond strengths with the bleached enamel, which they attributed to the presence of residual hydrogen peroxide. Acid etching after bleaching did not improve or restore the bond strengths, but immersion in water for seven days after bleaching did. These studies have clinical implications with respect to bonding and veneering after bleaching.

Effects on Restorative Materials: *In vitro* studies have reported varying results with respect to surface roughness changes; hardness values; dissolution effects; strength parameters; and the color changes that may occur in resins, glass ionomers, cements, amalgams and porcelains after exposure to carbamide peroxide.[33-38] Individual brands and types of restorative materials may have variable susceptibilities to bleaching agents, and no conclusions can be made at this time.

Soft Tissue and Systemic Effects: In the patient-applied bleaching technique, exposure to the bleaching solution is not isolated to the teeth through the use of rubber dam. Bleaching agents have prolonged contact with soft tissues and are unavoidably swallowed. Therefore, the advent of the in-home bleaching technique has raised some concerns in regards to whether bleaching agents, i.e. hydrogen peroxide or carbamide peroxide, have detrimental soft tissue and/or systemic effects.

Hydrogen peroxide, as an oxidant, has been adversely associated with carcinogenesis, aging, atherosclerosis, and lung injury.[39,40] Its most important damage potential lies in its capability to generate a highly reactive and toxic oxidant, the hydroxyl ion. Ultrastructurally, oxidants are responsible for the alteration of the structural integrity and function of the cellular membrane, via lipid peroxidation, DNA changes, and enzyme inactivation. Yet hydrogen peroxide is produced as a normal byproduct of oxidative metabolism and phagocytes.[41]

The prolonged use of hydrogen peroxide may be associated with periodontal injury, delayed wound healing, alteration of the microbial flora, hypertrophic papillae, hairy tongue, and/or opportunistic infections.[13] Rees and Orth[42] described two cases where the chronic use of hydrogen peroxide as an oral rinse led to burning, blanching, mucosal and tongue ulcerations, erythematous mucosa, and abraded or eroded interproximal papillae with white eschar.

Martin et al[43] studied the effect of one per cent hydrogen peroxide dripped continuously onto dog gingiva over six to 48 hours. He reported that hydrogen peroxide induced changes similar to those seen in an acute inflammatory reaction. Destruction and sloughing of the cornified layer occurred after 48 hours.

Weitzman et al[44] used the hamster cheek pouch as a model in their study of oral carcinogenesis. Hamster cheeks treated with a known carcinogen (DMBA) and topical hydrogen peroxide for a 22 week period had greater incidences of epidermoid carcinoma development (six of 11 cheeks and five of five cheeks for three per cent and 30 per cent hydrogen peroxide respectively) than those treated with the known carcinogen only (three of seven cheeks). Those treated with 30 per cent hydrogen peroxide only (no carcinogen) did not develop cancer, but did show some pathologic changes generally associated with pre-neoplastic lesions. The authors suggested a possible relationship of augmented cancer development to hydrogen peroxide and tobacco use.

Hirota and Yokoyama[45] fed rats with 1.5 per cent hydrogen peroxide in water *ad libitum.* Two groups of these rats were given three intraperitoneal injections of a known carcinogen (MAM) over six weeks. Two of eight rats in the MAM group that received hydrogen peroxide for the first six weeks only, and eight of eight rats in the MAM group that received hydrogen peroxide for all 17 weeks prior to sacrifice, developed duodenal and jejunal adenocarcinoma. None of the three rats fed hydrogen peroxide alone (no MAM) developed neoplastic changes, but all showed some hyperplastic conditions.

Ito et al[46] fed mice 0.4 or one per cent hydrogen peroxide in water for a 10-week period. Histopathologic examination at 40 to 108 weeks revealed greater incidences of stomach erosions, duodenal nodules and duodenal hyperplasia in the hydrogen peroxide-fed mice compared with the control group. Occurrences of adenoma and carcinomas started at 65 weeks in the hydrogen peroxide-fed mice, but none were evident in the control mice.

These studies, although inconclusive, do suggest a possible co-carcinogenic effect of hydrogen peroxide at concentrations similar to those that would exist in dentist- and patient-applied bleaching solutions. However, hydrogen peroxide has been used as an oral irrigant for many years and, thus far, there have been no reports implicating it as the causal agent of cancer. In addition, these hydrogen peroxide studies cannot be applied directly to carbamide peroxide, the bleaching agent used in current in-home bleaching systems. Few toxicity studies that are directly related to carbamide peroxide have been published to date. Woolverton et al,[47] in a recent abstract, concluded that Proxigel and Gly-oxide were less toxic and less mutagenic than other accepted dental medicaments and that they provided a large margin for safety if ingested. It was also reported that the great majority of in-home bleaching patients suffer no serious side effects.[21] However, incidences of tooth hypersensitivity, soft tissue irritation, sore throat, upset stomach and/or occlusal problems were recorded in 66 per cent of 7,617 survey respondents.[48] These problems resolved quickly after cessation of the bleaching treatment.

Conclusions

It is difficult to prove the absolute safety of any treatment modality. Dentists, after years of dealing with the amalgam controversy, are well aware of this. Unlike amalgam, however, in-home bleaches have had a short clinical history. The outcome of their use is of a cosmetic nature, not therapeutic, and remains unpredictable. They also have a potential for abuse as they have been readily available, and there are patients who may become "addicted" to striving for whiter teeth. The FDA recently classified these products as "new drug" and stated that clinically relevant biocompatibility studies were needed.[48]

Until long-term safety data become available, the dental practitioner should approach the use of these in-home bleaches with caution. The in-office bleaching gel system (no heat or light required) is a viable alternative and deserves further consideration. It is simple to use, requires little armamentarium, and limits the exposure of the bleaching agent to the teeth only.

SIEMENS

Finance your future with . . .

. . . programme 1 Pelton & Crane

4.95% (24 month term with 10% down)

ECONO Package 4506, consisting of Coachman IIE chair, LFII light, Spirit E OTP with 2 hp positions, Act II stools and ECONO cuspidor with vac pack including 1 Hve, 1 Salavia ejector, 1 3-way syringe and toeboard tilt.

or

. . . programme 2 Siemens/Pelton

6.95% (36 month term with 10% down)

All products listed in the Siemens Electric Limited retail price catalogue are qualifying for this programme.

Clearly the best solution.

Siemens Electric Limited, Medical Systems, Mississauga, ON Tel.(416) 670-6380 Fax(416) 564-5855

See us at booth No.'s 302, 304, 306 at the CDA Convention

A LEGEND

One night, in ancient times, three horsemen were riding across a desert. As they crossed the dry bed of a river, out of the darkness a voice called, "Halt!" and they obeyed. The voice then told them to dismount, pick up a handful of pebbles, put the pebbles in their pockets and remount. The voice then said, "You have done as I commanded. Tomorrow at sun-up you will be both glad and sorry." Mystified, the horsemen rode on. When the sun rose they reached into their pockets and found that a miracle had happened. The pebbles had been transformed into diamonds, rubies and other precious stones.

They remembered the warning and they were indeed both glad and sorry. Glad they had taken some, sorry they had not taken more. And this is the story of insurance.

Author unknown

The need for insurance is no legend.

CDIP's Basic Life Insurance can ensure your family's financially healthy future

Will those you care for be *glad* that you cared enough to ensure their future well-being? Or will they be *sorry* that you did not take full advantage of all the financial security options that were made available to you?

Their future depends on you. CDIP's Basic Life Insurance ensures that your family will enjoy a financially healthy future... *the one we know you want for them.*

Basic Life Insurance coverage has two purposes. One, to protect your dependents from the loss of financial support in the event of your death. Two, to meet your outstanding obligations such as debts, expenses and taxes.

Take a few minutes to do a quick calculation — adding in the amount of your mortgage indebtedness, ever-increasing property taxes, the basic cost-of-living, the GST, the cost of a college education for your children, your current business debts, financial security for your spouse and so on.

Will your present coverage be enough to cover all the debts and personal responsibilities you leave behind?

If you have any concerns, why not apply now for an increase in your personal Basic Life Insurance coverage. Premiums are very competitive for both smokers and non-smokers. A medical examination may be required.

Also available: Dependents' Life Insurance. In the event of the death of your spouse, it provides funds for the immediate and ongoing care of your children, meets your spouse's outstanding obligations, and covers funeral expenses in the event of the death of your spouse or children.

Should you have any questions about Basic Life Insurance or Dependents Life Insurance coverage, or to get an application form, call CDSPI and ask to speak to one of our Personal Service Representatives.

For your peace of mind, apply today. *We are here to help you.*

Available only to the dentists of Canada from your partners in personal and practice protection...

CDSPI

CDIP

... owned and operated by the dentists of Canada through the CDA and provincial associations.

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

1-800-561-9401

(Extention 236) *Service in English for British Columbia, Alberta, Saskatchewan, Manitoba, Northwest Territories and Yukon*

(Extention 238) *Service in English (Ontario)*

(Extention 236) *Service in English (Quebec & Atlantic Canada)*

1-416-296-9401 *Metro Toronto*

1-416-296-8920 *Fax*

Note to dentists in Quebec: In order to apply for and/or increase in your coverage in these plans and programs you must be a member of the Canadian Dental Association.

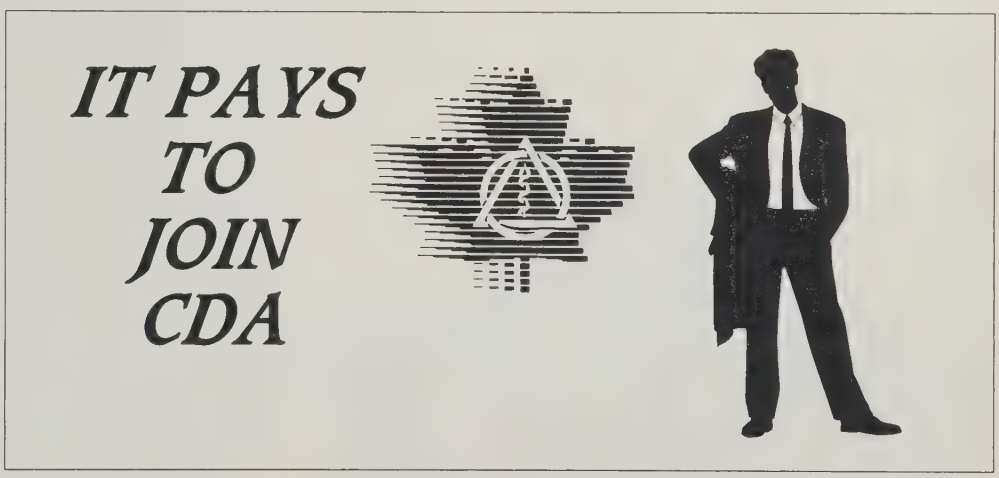
See us at booth No.'s 316, 318, 320 at the CDA Convention

Dr. Tam *is a M.Sc. graduate student in biomaterials, faculty of dentistry, University of Toronto.*

Reprint requests to: **Dr. Laura Tam**, *Faculty of Dentistry, University of Toronto, 124 Edward St., Toronto, Ont. M5G 1G6 .*

References

1. Faunce, F. Management of discolored teeth. *Dent Clin North Am* 27:657-670, 1985.
2. Zilich, R.M. Bleaching tetracycline stains. *Compend Cont Educ Dent* 5:465-468, 1984.
3. Feinman, R.E., Goldstein, R.E. and Garber, D.A. *Bleaching Teeth*. Chicago, Quintessence Books, 1987.
4. Nathanson, D. and Parra, C. Bleaching vital teeth. A review and clinical study. *Compend Cont Educ Dent* 8:490-497, 1987.
5. Hall, D.A. Should etching be performed as a part of a vital bleaching technique? *Quint Int* 22:679-686, 1991.
6. ???????. Reality. *Bleaching (Updated)*. Houston, Reality Publishing Co. 6:160-165, 1991.
7. Haywood, V.B. and Heymann, H.O. Nightguard vital bleaching. *Quint Int* 20:173-176, 1989.
8. Ploeger, B.J., Robison, R.A., Robinson, D.F. et al. Quantitative in vivo comparison of five carbamide peroxide bleach gels. *J Dent Res* 70(Spec Iss): 376, Abstr. No. 889, 1991.
9. Aldana, L., Wagner, H., Frysh, H. et al. Inactivation of tooth whitener peroxide by oral fluids. *J Dent Res* 70(Spec. Iss):424, Abstr. No. 1266, 1991.
10. Yarborough, D.K. The safety and efficacy of tooth bleaching: A review of the literature 1988-1990. *Compend Cont Educ Dent* 12:191-196, 1991.
11. Davies, A.K. Photo-oxidation of tetracycline absorbed on hydroxyapatite in relation to the light-induced staining of teeth. *J Dent Res* 46:936-939, 1985.
12. Chandra, S. and Chawla, T.N. Clinical evaluation of various chemicals and techniques of bleaching of discolored rooth filled teeth. *J Indian Dent Assn* 44:165-171, 1972.
13. Berry, J. What about Whiteners? Safety concerns explored. *J Canad Dent Assoc* 56:1090-1091, 1990.
14. Stindt, D.J. and Quenette, L. An overview of gly-oxide liquid in control and prevention of dental disease. *Compend Cont Educ Dent* 10:514-519, 1989.
15. Ledoux, W.R., Malloy, R.B., Hurst, R.V.V. et al. Structural effects of bleaching on tetracycline-stained vital rat teeth. *J Prosthet Dent* 54:55-59, 1985.
16. McEvoy, S.A. Chemical agents for removing intrinsic stains from vital teeth. *Quint Int* 20:379-384, 1989.
17. Walton, R.E. External bleaching of tetracycline stained teeth in dogs. *J Endodont* 8:536-542, 1982.
18. Cohen, S. and Parkins, F.M. Bleaching tetracycline-stained teeth in dogs. *Oral Surg* 29:465-471, 1970.
19. Darnell, D.H. and Moore, W.C. Vital tooth bleaching: The White and Brite technique. *Compend Cont Educ Dent* 11:86-93, 1990.
20. Haywood, V.B., Leech, T., Heymann, H.O. et al. Nightguard vital bleaching: Effects on enamel surface texture and diffusion. *Quint Int* 21:801-804, 1990.
21. Clinical Research Associated Newsletter. Tooth bleaching, home-use products update report. 13:1-3, 1989.
22. Rosenstiel, S.F., Gegauff, A.G., McCafferty, R.J. et al. In-vitro tooth color change with repeated bleaching. *Quint Int* 22:7-12, 1991.
23. Rosenstiel, S.F., Gegauff, A.G. and Johnston, W.M. Duration of tooth color change after bleaching. *JADA* 123:54-59, 1991.
24. Robertson, W.D. and Melfi, R.C. Pulpal response to vital bleaching. *J Endodont* 5:134-138, 1980.
25. Seale, N.S. and Wilson, C.F.G. Pulpal response to bleaching in dogs. *Ped Dent* 7:209-214, 1985.
26. Cohen, S.C. Human pulpal responses to bleaching procedures on teeth. *J Endodont* 5:134-138, 1979.
27. Zach, L. and Cohen, G. Pulp response to externally applied heat. *Oral Surg* 19:515-530, 1965.
28. Bowles, W.H. and Thompson, L.R. Vital bleaching: The effects of heat and hydrogen peroxide on pulpal enzymes. *J Endodont* 12:108-112, 1986.
29. Bowles, W.H. and Ugwuneri, Z. Pulp chamber penetration by hydrogen peroxide following vital bleaching procedure. *J Endodont* 13:375-377, 1987.
30. Ruse, N.D., Smith, D.C., Torneck, C.D. et al. Preliminary surface analysis of etched, bleached, and normal bovine enamel. *J Dent Res* 69:1610-1613, 1990.
31. Torneck, C.D., Titley, K.C., Smith, D.C. et al. The influence of time of hydrogen peroxide exposure on the adhesion of composite resin to bleached bovine enamel. *J Endodont* 16:123-128, 1990.
32. Torneck, C.D. Titley, K.C., Smith, D.C. et al. Effect of water leaching on the adhesion of composite resin to bleached and unbleached bovine enamel. *J Endodont* 17:156-160, 1990.
33. Burgess, J.O., Dutton, F.B., Gray, S.E. et al. Roughness of six restorative materials stored in bleaching agent. *J Dent Res* 70(Spec Iss):385, Abstract No. 952, 1991.
34. Tenaglia, C.A., Yaman, P. and Razzoog, M.E. Effect of vital tooth bleaching agents on enamel and composite. *J Dent Res* 70(Spec. Iss):475, Abstr No. 1674, 1991.
35. Christensen, W.G., Zema, R.B., Khan, Z. et al. The effect of vital bleaching solutions on dental luting agents. *J Dent Res* 70(Spec Iss):475, Abstr No 1675, 1991.
36. Burger, K.M. and Cooley, R.L. Effect of carbamide peroxide on composite resins. *J Dent Res* 70(Spec. Iss):570, Abstr No. 2431, 1991.
37. Friend, G.W., Jones, J.E., Wamble, S.H. et al. Carbamide peroxide tooth bleaching: Changes to composite resins after prolonged exposure. *J Dent Res* 70(Spec. Iss):570, Abstr. No 2432, 1991.
38. Bailey, S.J. and Swift E.J. Effects of home bleaching products on resin composites. *J Dent Res* 70(Spec. Iss):570, Abstr. No. 2434, 1991.
39. Link, E.M. The mechanism of pH-dependent hydrogen peroxide cytotoxicity in vitro. *Arch Biochem Biophys* 265:362-372, 1988.
40. Imlay, J.A. and Linn, S. DNA damage and oxygen radical toxicity. *Science* 240:1302-1309, 1988.
41. Weitzman, S.A., Weitberg, A.B., Niederman, R. et al. Chronic treatment with hydrogen peroxide. Is it Safe? *J Periodont* 55:510-511, 1984.
42. Rees, T.D. and Orth, C.F. Oral ulcerations with use of hydrogen peroxide. *J Periodont* 57:689-692, 1986.
43. Martin, J.H., Bishop, J.G., Guentherman, R.H. et al. Cellular response of gingiva to prolonged application of dilute hydrogen peroxide. *J Periodont* 39:208-210, 1968.
44. Weitzman, S.A., Weitberg, A.B., Stossel, T.P. et al. Effects of hydrogen peroxide on oral carcinogenesis in hamsters. *J Periodont* 57:685-688, 1986.
45. Hiroto, N. and Yokoyaml, T. Enhancing effect of hydrogen peroxide upon duodenal and upper jejunal carcinogenesis in rats. *Gann* 72:811-812, 1981.
46. Ito, A., Watanabe, H., Naito, M. et al. Induction of duodenal tumors in mice by oral administration of hydrogen peroxide. *Gann* 72:174-175, 1981.
47. Woolverton, C.J., Haywood, V.B. and Heymann, H.O. A toxicologic screen of two carbamide peroxide tooth whiteners. *J Dent Res* 70(Spec. Iss):558, Abstr. No. 2335, 1991.
48. Clinical Research Associates Newsletter. Home-use bleaching survey – 1991. (Data from 7,617 Random Newsletter Subscribers) 15:2-3, 1991.



CANADIAN DENTAL ASSOCIATION

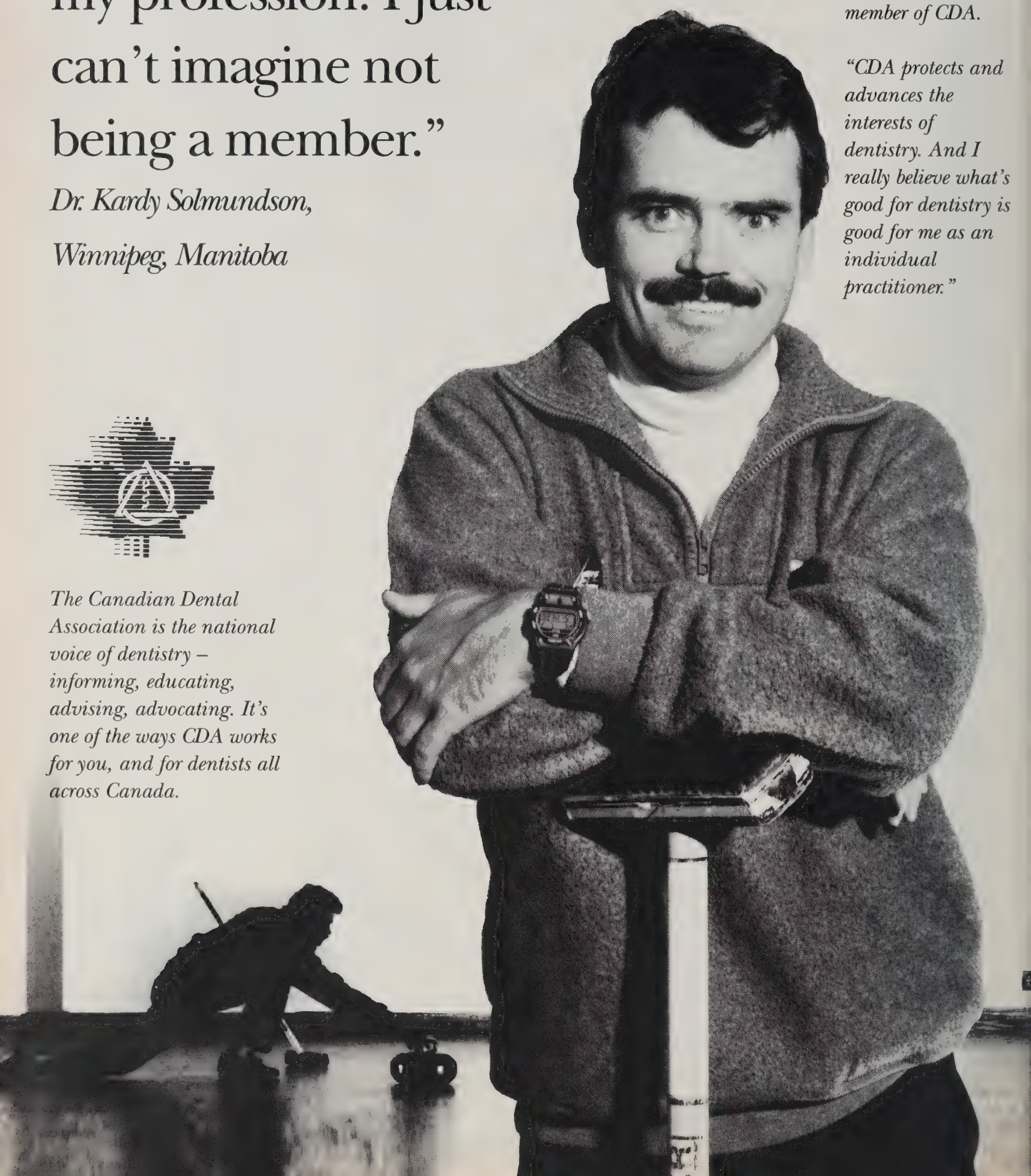
"CDA is the voice of my profession. I just can't imagine not being a member."

Dr. Kardy Solmundson,

Winnipeg, Manitoba

Dr. Kardy Solmundson: general practitioner, curler – and member of CDA.

"CDA protects and advances the interests of dentistry. And I really believe what's good for dentistry is good for me as an individual practitioner."



The Canadian Dental Association is the national voice of dentistry – informing, educating, advising, advocating. It's one of the ways CDA works for you, and for dentists all across Canada.

A preliminary comparative study of the retentive properties of four post and core systems in etched preparations

Martin Gelfand, DDS, FRCD(C)
Toronto, Ontario

ABSTRACT

Post and core systems anchored and supported by endodontic files, Para Posts, Boston Posts and Flexi Posts were subjected to tensile testing in an Instron testing machine. All forces were applied to the cores until the post-core system was removed. The test results revealed no statistically significant difference among post and core systems built up with Para Posts, Boston Posts or Flexi Posts. The endodontic files proved to be significantly less retentive than the other post systems evaluated. Under the conditions of this study, the use of endodontic files as retentive posts is not supported.

SOMMAIRE

Dans un appareil d'essais Instron, on a soumis à des forces de tension des tenons et des noyaux ancrés et appuyés par des limes endodontiques, des Para Posts, des Boston Posts et des Flexi Posts. Toutes les forces ont été exercées sur les noyaux jusqu'à ce qu'on enlève le système noyau-tenons. Les résultats n'ont révélé aucune différence importante entre les systèmes bâtis avec des para-tenons, des tenons Boston ou des flexi-tenons. On a découvert également que les limes endodontiques ont beaucoup moins de pouvoir de rétention que les autres tenons testés. Aussi, d'après cette étude, l'usage de ces limes comme tenons de rétention n'est-il pas justifié.

Introduction

Many authorities currently recommend that endodontically-treated anterior teeth be restored with post and core restorations.[1-5] A wide variety of shapes, surface configurations, diameters and lengths for posts have been recommended in the dental literature.[1-7] The primary purpose of these posts or dowels is the retention of the core materials that replace the missing tooth structure.[8-10] The practice of inserting these solid, inflexible, almost unbreakable metal dowels into the roots of teeth is occasionally complicated by root perforations and root fractures.[9-17] It has been shown that post preparations weaken the root structure[4,13-17] and that post preparation and cementation procedures create significant stresses within the root.[18-20] In response to a perceived problem of cracked roots, numerous studies dealing with the success rates of post and core crowns[7,9,10,21] and alternatives to solid cast or stainless steel prefabricated posts have been reported in the literature.[22-27,32-35,39]

One of the alternatives to the metal post is a post and core system fabricated entirely with composite. Stahl and O'Neal[31] have reported restoring 36 anterior single-rooted teeth with post and cores composed of only Adaptic composite material and covered with full crowns. After one year, 33 of these restorations remained intact. The three failures were caused by traumatic injuries. It is significant that no root fractures resulted from the trauma, and all three teeth were retained and subsequently successfully retreated.

Kenny and co-workers[34] reported a high rate of success in restoring primary teeth with short composite-resin post and cores. Within a period of 3.5 years, 17 failures were encountered from 625 restored teeth. The authors indicated that they have altered the design of the post preparations to include an "inverted mushroom undercut." Subsequent to this change, there have been no apparent failures associated with normal occlusion.

Gelfand and Smith[30] attempted to compare the retentive properties of composite-only post and core restorations to those fabricated with Para Posts and composite cores. In 49 of 50 samples subjected to tensile forces, the core material fractured away from the occlusal surface of the teeth and/or the Para Posts, leaving the posts embedded in the roots. It therefore appears that the weakest link in a post and core restoration, whether it is based on a prefabricated post or a composite-only post, is the interface between the core material and tooth (and/or post when one is used). The authors have further concluded that Para Posts with composite cores, cemented with unfilled resin into etched preparations, are significantly more resistant to fracture than composite-only restorations fabricated under identical conditions. From a clinical perspective, it follows that composite-only restorations are likely to be significantly weaker than those in which a Para Post is used, particularly when the entire coronal portion of tooth is missing. In these cases, some type of core "reinforcement" would probably be necessary. Whether this reinforcement must be relatively inflexible, like a para post, remains a question.

Steele[33] published an article in 1973 in which a technique involving the "reinforcement" of composite cords with stainless steel wires was used to restore endodontically-treated anterior teeth. Von Krammer[35] has described restoring endodontically-treated molars using "thin and flexible cable-type dowels..." These dowels are used to achieve adequate retention of the core materials while minimizing the stresses within the root canal. Their flexibility makes it possible to place the posts very deeply into the roots, even around the curves that are so often encountered in the roots of molars.

A recent study by Brown and Mitchem[36] indicated that the Flexi Post exhibits great resistance to dislodgement when subjected to tensile forces. Maximum retention was achieved when the posts were cemented into etched preparations with a glass ionomer cement (Ketac). Standlee and Caputo[37] have shown that the Flexi Post causes very low installation stresses within the

root structure. However, axial loading, after cementation, generates stresses at the threads, "with higher coronal and apical stresses." Therefore, although the post may achieve great retentive strengths, it may do so in conjunction with an increase in the potential for root fracture after the cement has set.

Greenfeld and co-workers[39] subjected post-core build-ups retained with Flexi Posts and Para Posts to compressive-shear testing. They found that the Flexi Post samples failed at greater forces than the Para Posts. The Flexi Post samples, however, failed with a greater incidence of root fracture.

The Boston Post is similar in the radicular portion to a Para Post, but has an enhanced coronal retention for core materials that is similar to the Flexi Post. Furthermore, the Boston Post system incorporates the use of 17 per cent EDTA and five per cent NaOCl before cementation, using an unfilled resin.[28,29] Since it uses a passive (non-threaded) cementation technique, it is of comparative interest relative to both of the other prefabricated post systems.

A moderately flexible stainless steel dowel might exhibit retentive qualities similar to a Para Post, Boston Post or a Flexi Post when cemented into an etched preparation with an unfilled resin, while creating lower interradicular stresses after cementation. Lower cementation and post-cementation stresses might reduce the incidence of root fracture. Endodontic files, which are flexible stainless steel rods, might present a viable and practical alternative to the inflexible prefabricated or cast posts now available. Since many practitioners currently perform endodontic procedures, endodontic files are readily available in a variety of sizes and fit almost any canal with a minimum of dentin removal. It has been well documented that the preservation of tooth structure is a prime concern in the prevention of post-endodontic restorative failures.[14-17] From the perspective of intraradicular stresses and the preservation of tooth structure, endodontic files may prove to be effective in reinforcing and retaining core materials in the same manner as the steel rods and cables previously described.[33,35]

The purpose of this preliminary study is to compare the retentive properties of composite post and core systems in which the dowels consist of four designs: stainless steel endodontic files, Para Posts, Flexi Posts and Boston Posts.

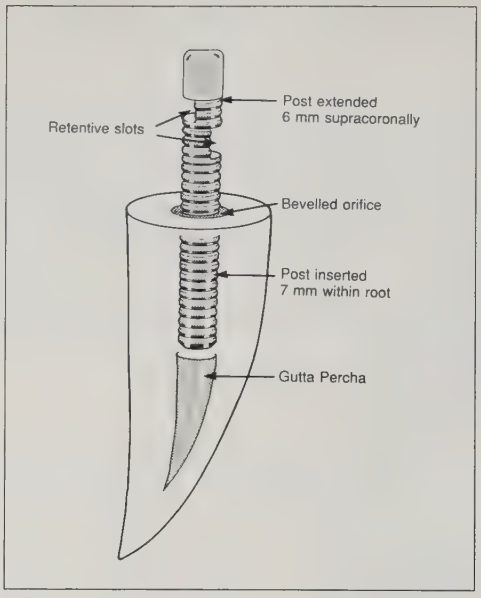


Fig 1: Schematic representation of a Para Post sample showing the position of the post within the root and extension from the root.

Method and Materials

Forty recently-extracted anterior single-rooted teeth of similar width were sectioned at the cemento-enamel junction and treated endodontically. Post preparations were prepared with number P-42-6 Para Post twist drills to a depth of 7.0 mm into the root. The margins of the orifice of the post preparation were bevelled with a number 6 round bur to eliminate any sharp angles at the junction between the core material and the occlusal surface of the tooth. Four types of posts were trimmed and fitted into the post preparations. The post preparations were etched with a combination of 17 per cent EDTA and five per cent NaOCl, as described in a previous study,[30] and the posts were cemented into place with Delton autopolymerizing pit and fissure sealant.* Cores were built up by packing P-10 autopolymerizing composite* into number 2 copper bands and placing the composite and the band over the post and in contact with the occlusal surface of the tooth. A screw-eye was placed into the occlusal end of the copper band and the core band-screw eye combination was held in place with moderate finger pressure until setting was complete (**Fig. 2**).

The four types of posts included in this preliminary study are as follows: number 5 Para Posts,** number 1 Flexi Posts,*** Boston Posts+ and number 140 K-files (Kerr Co.).++ Two millimetres of material were trimmed off of the apical extent of the Flexi Posts, and 5.0 mm were trimmed from the files, so that all posts were similar in diameter (approximately 1.5 ± 0.1 mm). After cementation, the posts projected 6.0 mm above the occlusal surface of the tooth (**Fig. 1**).

To enhance the retention of the core material to the files and Para Posts, notches were cut into the occlusal portion of the posts. The retentive notches were cut into the posts with a number 33 $^1/_2$ inverted cone bur to the depth of the bur. The notches were longitudinally directed and 1.0 mm long. One notch was cut 1.0 mm supracoronally on the buccal surface of the post, another on the mesial surface at 2.0 mm, another on the lingual surface at 3.0 mm and the fourth one on the distal surface at 4.0 mm (**Fig. 1**). The samples were mounted in acrylic (De Trey Special Tray)+++ and stored in water at room temperature until tested. All samples were subjected to tensile forces at a

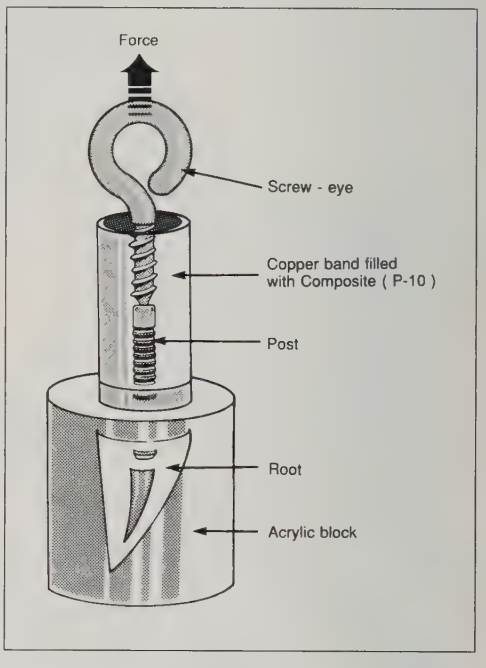


Fig. 2: Schematic representation of a sample prepared for testing in the Instron testing machine. The post is cemented in the root; the composite core and screw-eye fill the #2 copper band, and are seated on the post and the occlusal surface of the root. The tension is applied through the screw-eye in an occlusal direction.

cross-head speed of 0.1 cm/min in an Instron testing machine to failure. The forces required for failure were recorded and subjected to statistical analysis using the analysis of variance method. This was followed by the Duncan's multiple range test to determine if significant differences could be found among the different post core systems (**Fig. 2**).

Results

The means of the values of the forces, measured in the kilograms re-

BISCO

INTRODUCES

THE 4TH GENERATION

UNIVERSAL ADHESIVE SYSTEM

FEATURING UNIQUE WET (MOIST)* BONDING

ALL-BOND® 2 DUAL CURABLE

ONE BONDING SYSTEM FOR ALL YOUR BONDING NEEDS

The ALL-BOND® 2 system bonds to **dentin, enamel, metal** (precious and non-precious) **composite,** and **amalgam**

- Easy to follow instruction cards for all techniques
- Compatible with all composite brands
- Root desensitizing

*WET OR (MOIST) DOES NOT MEAN SALIVA CONTAMINATION

ALL-BOND®

OPAQUER/C&B

Companion kit for metal bonding, crown and bridge cementation

- Five shades of opaquer to attain all Vita Shades

ALSO AVAILABLE

ALL-BOND®

LINER-F

- Fluoride releasing
- Dual curable filled resin
- Amalgam bonding

BISCO THE SOURCE FOR COMPOSITE & ADHESIVE TECHNOLOGY

BISCO

Bisco Dental Products (Canada) Inc.
101-11500 Bridgeport Road
Richmond, B.C. V6X 1T2 1-604-276-8662
1-800-667-8811 (British Columbia, Alberta, Saskatchewan, Manitoba, Quebec)

Clinical Research Dental Supplies and Services Inc.
P.O. Box 28040
London, Ontario
N6H 5E1
1-800-265-3444 (Ontario)

See us at booth No. 616 at the CDA Convention

"CDAnet is paying off in spades for dentists right across Canada. Claims administration has never been simpler. Carrier payment has never been faster. And patients have never been happier. The bottom line on CDAnet is this – it works."

Dr. Don MacFarlane, Chairman
CDAnet Committee
Canadian Dental Association

CDAnet...
A REVOLUTIONARY ADVANCE IN CLAIMS PROCESSING

CDAnet is now at work in hundreds of dental offices across Canada. And it is delivering on its promises: speedy claims processing, quick claims payment, and satisfied patients.

CDAnet – a revolutionary advance in claims processing.

Get it working for you.

For more information call:
1-800-267-9701.

CDAnet™
Dentistry's National Information Network

TABLE I:

Mean Forces of Failure — Measured in kg

Variable	Number of Samples	Mean Force (kg)	Standard Deviation	Std. Error of Mean
Files	9	21.2	7.3	2.4
Flexi Post	10	30.8	5.1	1.6
Boston Post	9	28.9	7.1	2.4
Para Post	10	28.8	3.2	1.0

quired to remove the post and core systems, may be seen in **Table I**. Two samples, one file and one Boston Post, were not acceptable and were removed from the analysis. Of the remaining samples, the Flexi Posts displayed the most resistance to dislodgement, numerically, and the files the least resistance. The overall statistical analysis indicated a significant difference ($p < .01$) among the post core systems. However, paired comparisons revealed that only the files were significantly less retentive than the other systems (95 per cent confidence limit = 25.2). There was no significant difference between each of the other post core systems.

Discussion

The results of this study indicate that files are not as retentive as the prefabricated posts to which they were compared. It may be speculated that the files failed at lower forces for two reasons: The flutes of files are more widely spaced than the serrations of the prefabricated posts, and they are arranged in a spiral configuration. This reduces the surface of metal that is in contact with dentin. The reduced contact could reduce retention. Secondly, the tensile forces applied to the files may have caused distortion by stretching the flutes, as is often observed in stressed and narrow, calcified and severely curved, canals. The combination of reduced surface contact and linear distortion could account for the lower retentive strength of the files. Since most types of files would distort when severely stressed,[40,41] it would appear that they might not be the most effective choice as posts from the perspective of retention.

One interesting finding was the lack of a statistically significant difference between the retentive properties of the Flexi Post, Boston Post and Para Post systems. Although this finding may warrant further investigation, it should be treated with caution. In this study, the tensile forces were applied through the core material by the "screw-eyes." It was observed that the Flexi Posts appeared to twist or rotate in a counterclockwise direction as they failed. No attempt was made to key or provide other anti-rotational components. Clinically, most post and core restorations are covered with full crowns that extend apically around the periphery of the tooth. Since most teeth are not perfectly circular in cross-section, the irregular shape of the collar of the crown margins would prevent the posts from rotating even in the absence of anti-rotational locking. If the Flexi Posts are prevented from rotating, it might be expected that they would exhibit much higher retentive strengths.

In a previous study where Para Posts were used,[30] the retention of core material to the supracoronal portion of the posts was insufficient. Almost all of the restorations failed by fracture of the core away from the post. The posts remained in the roots. To overcome this problem, the height of the post projecting supracoronally was increased to 6.0 mm (as compared to 3.0 mm in the previous study) and vertical retentive slots were placed in the coronal portion. Nichols[42] has suggested that vertical retentive slots might be used to increase retention of posts within the roots. It was the suspicion of this investigator that these slots would be equally effective in enhancing the retention of core materials to the posts. The combination of slots and the increased post extensions out of the roots was effective. From a practical perspective, however, the preparation of the retentive slots, as performed in this project, was a problem. Their preparation was time consuming and frustrating because the burs dulled very rapidly and tended to skid and skip over the serrations in the posts and the flutes in the files, hindering the precision of the results considerably. Since no such effort was required for the Flexi Posts or the Boston Posts (excellent post-head retention for cores is designed into these posts), they were much more comfortable and efficient to use.

Summary and Conclusion

The purpose of this study was to evaluate the suitability of stainless steel endodontic files for use as retentive posts. The retentive strength of endodontic files, used within post core buildups, was compared to that of Para Post, Boston Post and Flexi Post buildups. The results are as follows:

1. There was no statistically significant difference between the Para Post, Boston Post and Flexi Post samples.

2. The endodontic file samples were significantly less retentive than the other post core systems tested.

Under the conditions of this study, it does not appear that the use of endodontic files as retentive posts is warranted.

Acknowledgements: *The author wishes to thank Edith Tveit for her efficient secretarial assistance, Branka Maric for her competent and indispensable technical assistance in the preparation of this manuscript, and Professor Adele Csima for her crucial preparation and assessment of the statistical analysis of the results.*

This project was funded by the Research Fund, Faculty of Dentistry, University of Toronto, in co-operation with the department of endodontics.

Dr. Gelfand *is on the staff of the department of endodontics, faculty of dentistry, University of Toronto, 124 Edward St., Toronto, Ont. M5G 1G6.*

Reprint requests to **Dr. Gelfand.**

References

1. Antinoff, S.J., Gulker, J.A. and Kaufman, E.G. A survey of post and core designs for endodontically treated teeth. *Quintessence Int* 4:79-83, 1978.
2. Stern, N. and Hirshfeld, Z. Principles of preparing endodontically treated teeth for dowel and core restorations. *J Prosth Dent* 30:162-165, 1973.
3. Sapone, J. and Lorenki, S.F. An endodontic-prosthodontic approach to internal tooth reinforcement. *J Prosth Dent* 45:164-174, 1981.
4. Hudis, S.I. and Goldstein, G.R. Restoration of endodontically treated teeth: A review of the literature. *J Prosth Dent* 55:33-38, 1986.
5. Johnson, J.K., Schwartz, N.L. and Blackwell, T.B. Evaluation and restoration of endodontically treated posterior teeth. *JADA* 93:597-605, 1976.
6. Lau, U.M.S. The reinforcement of endodontically treated teeth. *Dent Clin North Am* 20:313-328, 1976.
7. Durney, E.C. and Rosen, H. Root fractures as a complication of post design and insertion. *J Op Dent* 2:89-96, 1977.
8. Cohen, S. and Burns, R.C. *Pathways of the*

Pulp. Ed. 4. Toronto, C.V. Mosby Co. 1987, pp. 422-433.
9. Sorensen, J.A. and Engelman, J.J. Ferrule design and fracture resistance of endodontically treated teeth. *J Prosth Dent* 63:529-536, 1990.
10. Felton, D.A., Webb, E.L., Kanoy, B.E. et al. Threaded endodontic dowels: effect of post design on root fracture. *J Dent Res* 64:130, 1988.
11. Pitts, D.L. and Natkin, E. Diagnosis and treatment of vertical root fractures. *J Endodont* 9:338-343, 1983.
12. Trabert, K.C., Caputo, A.A. and Abou-Rass, M. Tooth fracture: comparison of endodontic and restorative treatments. *J Endodont* 4:341-345, 1978.
13. Eshelman, E.G., Jr. and Sayegh, F.S. Dowel materials and root fracture. *J Prosth Dent* 50:342-344, 1983.
14. Lovedahl, P.E. and Nicholls, J.S. Pin-retained amalgam cores vs. cast-gold dowel cores. *J Prosth Dent* 38:507-514, 1977.
15. Guzy, G.E. and Nicholls, J.S. In vitro comparison of intact endodontically treated teeth with and without endo-post reinforcements. *J Prosth Dent* 42:39-44, 1979.
16. Trope, M., Maltz, D.O. and Tronstad, L. Resistance to fracture of restored endodontically treated teeth. *J Dent Traumatol* 3:108-111, 1985.
17. Bravin, R.V. Post reinforcement tested. The functional stress analysis of post reinforcement. *J Calif Dent Assoc* 4:66-71, 1976.
18. Mattison, G.D. Photoelastic stress analysis of cast-gold endodontic posts. *J Prosth Dent* 48:407-411, 1982.
19. Henry, P.J. Photoelastic analysis of post core restorations. *Aust Dent J* 22:157-159, 1977.
20. Standlee, J.P., Caputo A.A., Holcomb, J. et al. The retentive and stress-distributing properties of a threaded endodontic dowel. *J Prosth Dent* 44:398-403, 1983.
21. Sorensen, J.A. and Martinoff, J.T. Intracoronal reinforcement and coronal coverage: A study of endodontically treated teeth. *J Prosth Dent* 51:780-784, 1984.
22. Michelich, R., Dillard, T. and Nayyar, A. Mechanical properties of amalgam buildups for endodontically treated molars. *J Dent Res* 59(455):228, 1980.
23. Nayyar, A., McDonald, T.R., Turner, R.F. et al. Strength of premolar corono-radicular buildups restored with cast crowns. *J Dent Res* 61:186, 1982.
24. Nayyar, A., Grimsley, J.W., Hall, M.C. et al. Strength of maxillary anterior corono-radicular buildups restored with cast crowns. J Dent Res 62:263, 1983.
25. Nayyar, A., Walton R.E. and Leanard, L.A. An amalgam coronal-radicular dowel and core technique for endodontically treated posterior teeth. *J Prosth Dent* 44:511-515, 1980.
26. Hoag, E.P. and Dwyer, T.G. A comparative evaluation of three post and core techniques. *J Prosth Dent* 47:177-181, 1982.
27. Gelfand, M., Sunderman, E. and Goldman, M. Effect of complete veneer crowns on the compressive strength of endodontically treated teeth. *J Prosth Dent* 52:635-638, 1984.
28. Goldman, M., DeVitre, R. and Pier, M. Effect of the dentine smeared layer on tensile strength of cemented posts. *J Prosth Dent* 52:485-488, 1984.
29. Goldman, M., DeVitre, R., White, R. et al. An S.E.M. study of posts cemented with an unfilled resin. *J Dent Res* 63:1003-1005, 1984.
30. Gelfand, M. and Smith, D.C. Retentive properties of three post and core systems with and without etching. *J Canad Dent Assoc* 55:309-312, 1989.
31. Stahl, G.J. and O'Neal, R.B. The composite resin dowel and core. *J Prosth Dent* 23:642-647, 1975.
32. Seng, G.F., Rupell, O.L., Nance, G.L. et al. Placement of retentive amalgam inserts in tooth structure for supplemental retention. *Gen Dent* 6:62, 1980.
33. Steele, G.D. Reinforced composite resin foundation for endodontically treated teeth. *J Prosth Dent* 30:816-819, 1973.
34. Kenny, D.J., Johnston, D.H. and Bamba, S. The composite short post: a review of 625 teeth. *Ont Dent* 63:12-18, 1986.
35. Von Krammer, R. Anchored core for the rehabilitation of posterior teeth. *J Prosth Dent* 55:38-42, 1986.
36. Brown, J.D. and Mitchem, J.C. Retentive properties of dowel post systems. *Oper Dent* 12:15-19, 1987.
37. Standlee, J.P. and Caputo, A.A. Retentive and stress distributing characteristics of split, threaded endodontic posts. *J Dent Res* 64:130, 1988.
38. Nayyar, A. Coronal-radicular buildup for endodontically treated teeth. *Clin Dent* 26:1-28, 1983.
39. Greenfeld, R.S., Roydhouse, R.H., Marshall, F.J. et al. A comparison of two post systems under applied compressive-shear loads. *J Prosth Dent* 6:17-24, 1989.
40. Craig, R.G., McIlwain, E.D. and Peyton, F.A. Bending and torsional properties of endodontic instruments. *Oral Surg* 25:239, 1968.
41. Dolan, D.W. and Craig, R.G. Bending and torsion of endodontic files with rhombus cross-sections. *J Endodont* 8:260, 1982.
42. Nichols, J.I. Rebuilding the treated tooth. *J Calif Dent Assoc* 16:34-38, 1988.

** Johnson and Johnson, Dental Products, Montreal, Quebec.*
*** Para Post, P-71-6. 0.06" or 1.5 mm diameter. Whaledent International, 235 Fifth Avenue, New York, N.Y.*
**** Essential Dental Systems Inc., 89 Leuning St., Hackensack, N.J. – 1.4 mm diameter.*
+ Roydent Dental Products, Troy, MI – 1.6 mm. diameter.
++ Kerr Manufacturing Co., Romulus, MI.
+++ De Trey Dentsply, Weybridge, Surrey, England.

! WE ARE ON THE MOVE !

To our Customers and Friends

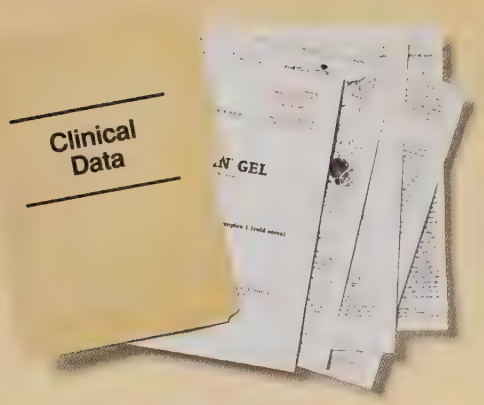
Bolton Dental Manufacturing Inc. is very proud to announce that we will be moving our firm to new facilities effective August 1, 1992.

BDM
Bolton Dental Manufacturing Inc.,
Buffalo Dental Manufacturing Inc.,
50 Goebel Avenue.
Cambridge, Ontario
N3C 1Z1
(519) 651-2444
(800) 667-3770 TOLL FREE
FAX: (519) 651-0939

Your continued support has enabled us to expand to meet the needs and requirements for you, our customers.

BDM
Bolton Dental Manufacturing Inc.,
Making Dentistry Work For You

Signed,



Sealed,

Delivered.

Lipactin® Clinically proven to help heal cold sores *fast.*

Applied at the first sign of tingling, Lipactin has shown an onset of healing **after 3 days** in 96% of patients.[1] Within 4 to 7 days, 83% of cold sore sufferers tested showed signs of complete healing, compared to 26% with placebo.

Is it any wonder that drugstores sell more Lipactin than any other non-prescription cold sore remedy?[2]

There may not be a cure for cold sores. But there is Lipactin.

Lipactin® *Serious medicine for cold sores*
GEL (heparin sodium-zinc sulfate)

CIBA–GEIGY
SELF MEDICATION PRODUCTS
P.O. Box 200
Mississauga, Ontario L5M 5N3

PAAB
CCPP

* Lipactin is a registered trademark of CIBA-GEIGY Canada Ltd.

1.Data on file, CIBA-GEIGY Canada Ltd.
2.A.C. Nielsen Data

For prescribing information see page 678

The Dawn of a New Era in Patient Education

Did You Miss It?

Patient Education For The Nineties

October 1991 marked the dawn of a new era in patient education. The signal event? The launch of CDA's Dental Information System.

Every dentist in Canada received a brochure that introduced the system: what it is, how it works, and how it can work for you.

Hundreds have already contacted CDA for more information or to place their initial order. Here's your opportunity.

The Dental Information System is patient education for the Nineties. It's what dentists told us they needed. What patients told us they wanted. It is dental information redefined: the way it looks, the way it's organized, the way it's read, the way it works.

And it's available now.

Call CDA Toll-Free Today

You can order individual booklets, the whole series, or the custom designed display rack. CDA members save 25% on everything.

WHAT HOW WHEN
THE DENTAL INFORMATION SYSTEM
WHY

The Dental Information System: clear, comprehensive, useful and friendly

•8 booklets, 12 pages each (5" X 8") •rigorously reviewed by dental experts •wide range of topics
•easy access indexing system •boxes, charts and photography that make information lively
•custom designed plexiglass rack (24" X 24" square)

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

Call: 1-800-267-6354 (Western Canada, Newfoundland, and Labrador)
1-800-267-6364 (Eastern Canada)

Colgate™

The Dental Information System has been made possible through the generous assistance of Colgate Palmolive.

CDA Access Ads

CDA ACCESS ADS offer guaranteed* access to Canada's largest audience of dentists. To place your ad, call OLA MURPHY toll-free across the country at **(800) 661-5004**. In the Toronto calling area, please dial **(416) 278-6700.**

**If you are not satisfied with the results of your ACCESS AD, we will offer you your money back in the form of a credit for future use. Please call for more information.*

Replying to a CDA Access Box Number?
Simply write to:
CDA Access Box ___,
1382 Hurontario St.,
Mississauga, Ont. L5G 3H4.
Or you may fax your reply to (416) 278-4850, noting the appropriate box number.

Offices & Practices

BRITISH COLUMBIA - Southern: General family practice with a preventative emphasis. Independently evaluated and appraised as being unsurpassed in quality. Located in brand new office building. Dental office occupies 2,000 sq. ft. on main floor with a 2,000 sq. ft. basement, yearly gross approximates $600,000. Could easily accommodate two hard-working dentists. Great support staff. Owner returning for postgraduate training. Please reply to CDA ACCESS Box 2526. (10/08)

BRITISH COLUMBIA - Prince George: Situated in downtown area, well established general practice, with good patient base and recall system. Four operatories, lab, pan and X-ray room. Gross $450,000 per year, working only three days per week. Area offers excellent all-round facilities and recreational opportunities. Please call (604) 769-3537, (604) 564-5051 or (604) 564-4945. (04/13)

BRITISH COLUMBIA - West Kootney-Trail: Growing general practice for sale. Four operatories, 1,400 sq. ft., downtown location, grossing $450,000 yearly, 52% overhead, four day week, 10 weeks per year holidays. Building owned by vendor, family wishes to relocate to University of Victoria area. Valued at $250,000. Contact Jacke LaBine, phone (604) 368-6525, fax (604) 364-1099. (03/08)

B.C. - Vancouver Suburbs
Pediatric practice - established Ortho/Pedo practice. Tastefully decorated office with four operatories and central nitrous.
Excellent opportunity for growth.
Medi-Dent Professional Services
Contact: Al Heaps (604) 669-9857.(06/08)

FOR INFORMATION ON B.C. DENTAL PRACTICES FOR SALE CALL
Health Pro Management Ltd.
17335 - 59th Ave,
Surrey, B.C. V3S 1N9
tel (604) 576-2866 fax(604) 576-9180

ALBERTA - Red Deer: "The heart of the parkland." Well established family practice with solid patient base and good recall. Three modernly equipped operatories and panograph. Located in professional building adjacent to regional hospital, excellent lease. Long standing supportive staff. Practitioner planning post-grad studies. Dr. D. Crowe (403) 342-5135 after 6 p.m. (07/10)

ALBERTA - Claresholm: For sale three operatories, shared waiting room, dental building for lease or option to buy. Overhead is low, situated close to the foot hills, skiing mountains, Calgary, Lethbridge. In grain & ranching country with five hospitals, three schools, good golf course, swimming pool and arenas. Good opportunity for expansion. Owner wishes to retire. Phone (R) (403) 625-3254, (O) (403) 625-3559 or Bernie (403) 283-0323. (08/09)

SASKATCHEWAN: Rural practice for sale in Saskatchewan. Well established two operatory general practice with high gross and low overhead. Only dentist in town of 1,800. Large drawing area. Good patient base with superior growth opportunities. Town is about a one hour drive from Saskatoon or Regina. Owner returning to school. Please reply to CDA ACCESS Box 2532. (07/08)

SASKATCHEWAN: Town on Trans Canada Hwy. Practice and building for sale. Gross over 600K. Must sell. Please reply to CDA ACCESS Box 2547. (08/09)

ONTARIO - Niagara Peninsula: General practice, professionally appraised, with five operatories in 1,500 sq. ft. Two hygienists and denture therapist help support two full-time dentists. Associateship available first if desired. Call Sandy after 6 p.m. (519) 657-3035. (06/08)

ONTARIO - Georgian Bay: Very busy practice for sale, suitable for one or two dentists. Well established practice in a modern facility, only two hours from Toronto. Averaging 35 new patients per month with a high gross and low overhead. Please reply to CDA ACCESS Box 2544. (06/08)

FOR SALE
Busy Oral and Maxillofacial Surgery practice in **Eastern Ontario** city. Full scope of practice. Major anesthesia component to office practice. Small satellite office. Privileges in two tertiary teaching hospitals. For complete information please reply to **CDA ACCESS Box 2539**. (04/08)

Medi-Dent Profe

Providing Comprehensive Practice Valuations And Brokerage

Ontario

DOWNTOWN TORONTO, Ontario - On subway line in prominent mall location, one operatory equipped and three plumbed and wired. Approximately 900 active patients and excellent growth potential. Owner will participate on part-time basis.

TORONTO, Ontario (Don Mills & Sheppard) - Mall location in densely populated area, excellent new patient flow, 1000 sq. ft. office, plumbed and wired for 5 operatories, 2 fully equipped, presently grossing $40,000 per month.

MISSISSAUGA, Ontario - Equipment and leaseholds, 2 yr. old medical/dental building, attractive office, 1 room fully equipped, 2 additional plumbed and wired, large windows in every operatory, large reception area, private office included with private washroom.

WESTON, Ontario - Very well established practice now available, 2 operatories plus 1 plumbed and wired, large patient base with excellent potential, presently worked 3 days/week, owner retiring, will assist in takeover.

PETERBOROUGH, Ontario - Well established 800 patient dental practice in South West section of town. 1,200 square feet of space with good terms. 3 complete operatories. Established over 20 years. Excellent staff willing to stay on.

EASTERN ONTARIO - Growing community - 2 hr. drive to Toronto, well established family practice located in professional building, 3 complete operatories, gross in excess of $250,000 during last fiscal year, over 1100 active patients, owner will assist in takeover on part-time basis.

NIAGARA FALLS - Very busy practice for sales - booked three weeks in advance. Four complete operatories and one hygiene room - 1,800 patients, hygienist works three days per week. Doctor has been in Niagara Falls for 21 years and at this location for 6 years. Doctor is going back to school for continued education.

MISSISSAUGA - ONTARIO - Partnership available in large mall practice in downtown mississauga. Open 6 days a week. Practice is expanding with 60 new patients per month.

KINGSTON - ONTARIO - Well established 2 operatory family practice in large medical dental building. Over 1,000 active patients. Doctor retiring but will assist in takeover.

TORONTO - ONTARIO - Bathurst Eglinton area orthodontist retiring from well established practice will assist in takeover. 600 sq. feet with two operatories and large lab.

BLOOR VILLAGE - 2 operatory well established practice for sale with over 4,000 patients. On subway line in professional building.

SUDBURY AREA, Ontario - Two operatory practice in medical/dental centre, excellent net income with very low expenses, ample free parking, medical reason necessitates sale or associate potential for one year.

NORTH EAST, Ontario - 40 minutes north-east of Toronto. Busy 3 operatory practice available with room for expansion.

TORONTO, Ontario (Northwest) - Excellent progressive practice located in a professional building with favourable new 5 + 5 lease. Four operatories and 1 plumbed. 1991 gross over $570,000 with good potential for growth.

OTTAWA, Ontario (downtown) Professionally renovated 4 operatory general practice complete with Panoramic X-ray. Well established practice. Very well equipped. Lots of windows, staff room, education room and private office.

OTTAWA, Ontario (outskirts) Terrific opportunity to buy into a very busy 4 operatory practice. Excellent gross income in young growing area. Current doctor is too busy and requires dedicated individual to take over some of existing patients and new patients.

TORONTO, Ontario - Danforth Avenue - Walking distance to subway. Busy, fully equipped 3 operatories and hygiene room, storefront practice. Established in 1977 with over 1,600 patients and still growing. Favorable lease terms and room for expansion. Owner willing to stay on and help with transition.

TORONTO, Ontario (Yonge & St. Clair area) - Well established downtown practice with good gross. Two complete operatories with room for expansion.

MAPLE, Ontario - Relatively new practice in a prime location in a lovely town 20 minutes north of Toronto. Two complete operatories with plumbing & wiring installed for a 3rd. Good gross for a growing practice.

LONDON, Ontario - Well established 2 operatory practice with room for 1 more operatory. 950 active patients and still growing.

LONDON, Ontario - Facility for sale in professional mall with ample parking and public transportation. 1 complete operatory and 2 plumbed and wired. Beautifully decorated.

TORONTO - BAY BLOOR AREA - 2 operatory well established practice in concourse to subway area. 700 active patients on 6 month recall. Owner will assist in takeover prior to relocating to U.S.A.

DOWNTOWN TORONTO - Busy 2 operatory practice available in large professional building. Doctor retiring but will assist in takeover.

Alberta

EDMONTON, ALBERTA (SPRUCE GROVE) - Well established general practice with some endo and oral surgery. 9 operatories in a 4,000 sq. ft. office. Good premise lease (to 17 years). Gross billings exceeding $800,000. Professionally managed, computerized office. Dentist retiring. Spruce Grove provides residents with all the amenities and is just 25 minutes from Edmonton.

CALGARY, - Very successful general practice with 6 operatories plus 1 plumbed. Well appointed 3,200 sq. ft. clinic with good premise lease (to 7 years). 1,900 active charts. Gross billings exceeding $900,000. Upgraded computer system and well designed patient consultation/education area. Owner would consider motivated associates for transitional purchase. Dentist relocating and specializing.

For Confidential And Profes

VANCOUVER

Tel: (604) 669-9857
Fax: (604) 685-9908
1-800-563-4321
Al Heaps
Marketing Representative

CALGARY

Tel: (403) 237-5360 (24 hrs, 7 days)
Fax: (403) 269-9103
1-800-661-8664 (24 hrs, 6 days)
(AB, BC, SK & MB)
Craig Nicks B.Sc., M.B.A.
Alberta Registered
Real Estate Representative

TORONTO

Tel: (416) 620-0922
Fax: (416) 620-6719
1-800-668-4221
John Crisp
Sales Representative
Medi-Dent Professional Services/
New Era Realty

ssional Services

Services In British Columbia, Alberta, Ontario And Quebec.

EAST CENTRAL, ALBERTA - Profitable general practice in the Battle River country. Very progressive community just 90 minutes from Edmonton. 2 fully equipped operatories with pan. 600 sq. ft. in a health centre with attractive premise lease, flexible terms and low rent. Gross billings exceeding $250,000 on 1,200 active charts. Tremendous potential for specialization. Dentis retiring and relocating. Very attractive residential acreage with farm implements is available for purchase.

RED DEER, ALBERTA - Attractive, well designed, recently renovated 800 sq. ft. general practice in medical arts building. 3 operatories and pan. Billings exceeding $300,000 on a part-time basis. Tremendous potential for prosthetics. Dentist retiring. Red Deer offers all the urban amenities while retaining its rural ties.

EDMONTON, ALBERTA - Growing practice in upscale southwest neighborhood. 2 operatories with an additional 3 already demised. Lab, office, kitchen. Ample waiting area and reception tastefully decorated, 1,700 sq. ft.. Premise lease available to 7 years. Gross billings exceeding $12,000/month on 500 active charts. Dentist retiring.

GRANDE CENTRE, ALBERTA - General practice serving the Tri-towns of Medley, Cold Lake and Grande Centre. 2 operatories with a 3rd available in a cost shared 3,000 sq. ft. dental clinic. 2,400 active charts. Good premise lease (to 10 years). Gross billings exceeding $350,000. Professionally managed, computerized office. Dentist relocating to another province. The Tri-Town area offers excellent recreational activities combined with quality lifestyle.

RED DEER, ALBERTA - Attractive, well designed, recently renovated 800 sq. ft. general practice in medical arts building. 3 operatories and pan. Billings exceeding $300,000 on a part-time basis. Tremendous potential for prosthetics. Dentist retiring. Red Deer offers all the urban amenities while retaining its rural ties.

CALGARY, ALBERTA (NORTH WEST) - Productive, well established general practice with gross billings that have exceeded $300,000 on 600 active charts. 2 operatories with pan in 760 sq. ft., recently renovated. Located in medical arts building. Lease available to 6 years. Dentist relocating.

British Columbia

WEST KOOTNEYS, B.C. - Near Trail, B.C. Two operatories with room to expand. Fast growing rural area. Price: $110,000. An enviable lifestyle.

PRINCE RUPERT, B.C. - Rapid sustained growth in professional family practice, 1500 sq.ft., 3 ops, attractive premise lease, very nice leaseholds. Includes fully furnished apartment. Fishing, skiing & boating paradise.

VANCOUVER, B.C. - Established ortho/pedo practice. Tastefully decorated office with four operatories and central nitrous. Lots of potential for growth.

NORTH VANCOUVER, B.C. - Established family practice. Price includes over $50,000 in recent improvements and major renovations. Improvements have created an opportunity for substantial growth. Busy retail mall location with exposure on major thoroughfare. Three operatories. .

NORTH VANCOUVER, B.C. - High traffic area off Lonsdale. Offered for sale as an established periodontal practice or turn-key operation for general practitioner. Available immediately. Four operatories, fully equipped. Great location with beautiful mountain and harbour views. Price $160,000. Vendor Financing available

VANCOUVER, B.C. - Chinatown. Established 12 years. Very busy location. Gross billings approximately $300,000. Low overhead Cantonese speaking general practice. Two operatories. Extremely well priced at $79,000.

BURNABY, B.C. - Ideal location on the Kingsway. recently rezoned to commercial, lots of development in the immediate area. Two operatories. Great starter practice with opportunity for expansion. Price: $123,000.

VICTORIA, B.C. - Suburban Victoria with major development taking place. Almost $1 million gross - one dentist - four days per week. Unlimited potential. Beautiful office, fully equipped including Pan. Established eight years. Only dentist and approximately 30 M.D.'s in medical building. Computerized.

NANAIMO, B.C. - Fantastic opportunity to become a full partner in one of Nanaimo's largest and most successful dental clinics. Four equal partners share the clinic and own the premises. 16 operatories. Extremely unique and productive practice located in suburban Nanaimo - one of B.C.'s fastest growing communities. Gross billings approx. $450,000.

VANCOUVER, B.C - Busy South Vancouver, 4 operatory practice, attractive leaseholds and premise lease, fully computerized with excellent staff, 35 - 40 new patients/month, excellent exposure in busy shopping area within medical/dental centre (2 dentists, 5 physicians). Estimated 1992 gross, over $750,000. Price: $390,000.

CAMPBELL RIVER, B.C. - Dentist retiring after 25 yrs., great starter practice in ideal location on Vancouver Island. Plenty of potential with appropriate transition period. Two operatories, 760 sq.ft. Salmon fishing capital of North America.

LYTTON & BOSTON BAR, B.C. - Rural practice with lots of potential. Practitioner works approx. 90 days per year. Located in scenic Fraser Canyon (approx. 3 hr. drive from Vancouver). $99,000.

VICTORIA, B.C - High profile general practice for sale. Twenty year old, well established practice, prime downtown location with sweeping views of the beautiful inner harbour, Straits of Jaun de Fuca and the Olympic Mountains. All new equipment and gorgeous lease-hold appointments. Three operatories with room for expansion, high gross and a fantastic working environment. Price: $350,000.

NORTH VANCOUVER, B.C. - Ideal starter practice for general practitioner. Four fully equipped operatories. Busy Lonsdale location. 1,700 sq. ft. in a professional building. Plenty of room and opportunity for expansion. Established recall. Over 900 active charts.

DELTA, B.C. - General practice over 3,000 active charts. 1,300 sq. ft., five operatories, hygienist. Main floor medical/dental building in a developing area of Delta. $380,000. (shares). Estimated gross billings $600,000+. Retiring dentist prefers slow transition period.

VICTORIA, B.C. - General practice established more than 25 years, located at Victoria's main downtown intersection. Approximately 1,600 active patients. Two operatories plus one plumbed. Gross billings: $155,000 (no Associates or Hygienist). Price: $95,000.

CENTRAL VANCOUVER ISLAND - Established general practice. Large 2,150 sq. ft. office with six operatories. Computerized. Vendor prefers slow transition period. Gross billings $385,000. Price: $185,000.

ional Service, Please Contact:

OTTAWA

Tel: (613) 236-0231
Fax: (613) 238-8099
1-800-563-4321
John Lynch
Sales Representative
Medi-Dent Professional Services/
New Era Realty

MONTREAL

Tél: (514) 288-7777
Fax: (514) 288-1478

Jacques Riel
Services Professionnels Médi-Dent Inc.

MAPLE - ONTARIO
20 minutes north of Toronto, three-year-old dental practice for sale. Beautifully located in a professional building in the centre of a wealthy growing community. Two ops. fully equipped and third wired. Sitting area with marble floors and t.v., low overhead, good referrals and excellent opportunity. Call Pina mornings (416) 787-5557, evenings until 10:00 & weekends (416) 737-9332. (07/09)

ONTARIO - CALEDON
Practice For Sale
Newly renovated, 650 sq. ft., 2 operatories, dental office in plaza. **Very reasonably priced**, ideal for recent grad. Call Dr. Osuch (416) 270-8652 (Mon-Fri., 9-5). (07/10)

NEW BRUNSWICK: Well established family practice for sale in the Moncton area. Three operatories, lab, staff room, dark room, panoramic X-ray and private office, 1,500 sq. ft. (doctor owned). Excellent patient base and recall practice. Please write: P.O. Box 27020, Dieppe, New Brunswick E1A 4X0. (06/08)

NOVA SCOTIA - Annapolis Valley: Practice for sale in Nova Scotia Annapolis Valley. Very busy family practice, 1,200 sq. ft. office in a medical dental professional centre. Ultra modern dental set-up, good gross, priced to sell. For more information call (902) 245-5666. (04/13)

NEWFOUNDLAND - St. John: Well established general family practice for sale by dentist who wishes to retire. Good location, low overhead, solid patient base. Available September 1992. Call Dr. William Dwyer (709) 726-8698. (08/09)

NEWFOUNDLAND: General family practice for sale. Hospital setting, serving 10,000. Easily supports two dentists, with a potential satellite clinic. Two state-of-the-art operatories, and a third with X-ray unit. Excellent lease arrangements, owner will assist in transition. Please reply to CDA ACCESS Box 2535. (02/08)

US FORTUNE 500 CO.
Expanding to Pacific Rim Countries.
Extraordinary unlimited income featuring time freedom and predictable 3-5 year retirement.
Often a viable supplement to your existing career.
Call Viny Dolce at (407) 969-1001 (11/13)

Positions Available/Sought

ASSOCIATE WANTED
Dr. Barry Goldberg, Lillooet , B.C. requires a full time associate for a busy family practice. Contact: Ann (604) 256-4616 or evenings (604) 256-7162. (06/08)

BRITISH COLUMBIA
Associate Wanted
For oral and maxillofacial group practice with four offices in the greater Vancouver area. This is an excellent opportunity for an ambitious, energetic and committed individual who is eager to become part of an established growing team of oral and maxillofacial surgeons. Write with full details to **CDA ACCESS Box 2536.** (07/08)

BRITISH COLUMBIA - Pender Island: Well established island practice within larger community medical facility requires associate to practice two days per week. Daily commute from Vancouver Island is conveniently available via ferry. Ideal for semi-retired dentist or dentist raising children. Call (604) 732-4314. (07/09)

LOCUM LOCATORS
HAS REPLACEMENT DENTISTS
OWNER DENTIST
Try it for 2, 3, 4, weeks
One Time Only
Registration Fee $100
Flat Fee $250 for each party upon successful placement.
Regardless of duration.
CALL COLLECT
(403) 791-7799. (07/08)

ALBERTA: Full time associate required for busy family oriented practice in Spruce Grove, Alberta, 20 minutes west of Edmonton. Phone (403) 962-6670. (08/08)

ALBERTA - Edmonton: Periodontist with well-established, progressive, busy periodontal practice is seeking another Periodontist to join him on a cost sharing or associate basis. Excellent opportunity for capable Periodontist qualified to practise in Alberta. Contact Yvette (403) 436-0108. (01/08)

SASKATCHEWAN - Regina: Seeking dental associate for modern office in large medical/dental facility. Good opportunity for the right person. For details call Dr. Ronald Katz, (306) 924-1494, or write to: 235B Albert Street N., Regina, Saskatchewan S4R 3C2. (08/11)

Oral Maxillofacial Surgeon
with fellowship to The Royal College and experience in trauma and orthognathic surgery wishes an associateship with an existing O.M.F.S. practice in Ontario or Prairie provinces. Please reply with telephone # to **CDA ACCESS Box 2546.** (07/09)

EXPERIENCED DENTIST SEEKING ASSOCIATESHIP
Anywhere in Toronto. Available mid Aug. or Sept. for part-time but preferably full-time work. French/English spoken/written. Please call (416) 461-9149 , or write to: 103 Brooklyn Ave., Toronto, Ont. M4M 2X4. (08/09)

YUKON - Whitehorse: Hygienist needed immediately. Full-time, energetic, devoted hygienist required in a six operatory preventative practice in booming downtown Whitehorse. Experience is preferred but new grads are welcome. Salary, benefits to be discussed. Serious applicants please, fax resume (403) 668-5121, or leave message at (403) 633-4528. (08/11)

YUKON - Whitehorse: Associate wanted. Full-time or continuing locum needed in a very busy, bright, well-staffed, friendly, six operatory practice in booming downtown Whitehorse. Ideal opportunity for motivated, hard-working, cheerful individual who wants the best of both worlds - Busy patient flow and the beautiful outdoors (skiing, hiking, camping, canoeing, ect.) Serious applicants please, fax resume (403) 668-5121, or leave message at (403) 633-4528. (08/11)

To place your CDA ACCESS AD just call OLA MURPHY at (416) 278-6700 (Toronto Area) or 1-800-661-5004.

THE UNIVERSITY OF SASKATCHEWAN

Dean of the College of Dentistry

Applications and nominations are invited for the position of Dean of the College of Dentistry. The appointment, which will be effective July 1, 1993 will be for a renewable five year term.

Enrolment in the College for the 1991-92 academic year was 99 undergraduate students. The University of Saskatchewan has a student population of approximately 18,000 full and part-time students registered in thirteen colleges.

The College offers an undergraduate program leading to the D.M.D. degree which requires five years of study in the College following a minimum of one year of pre-dental studies in the College of Arts and Science.

The successful candidate will be an established scholar with proven administrative ability. The Dean will have demonstrated a dedication to excellence in research and teaching and will provide leadership for the continuing development of the teaching, research and service programs within the College as well as for the external relationships of the College and its various constituencies. The Dean will also be involved in the University's general academic leadership.

Applications should be accompanied by a detailed curriculum vitae. Letters of nomination should include biographical details of the nominee. Applications, nominations and enquiries should be submitted not later than **October 31, 1992** to:

Dr. Patrick J. Brown, Vice-President (Academic)
Room E216, Administration Building
University of Saskatchewan
Saskatoon, Saskatchewan
S7N 0W0

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. The University of Saskatchewan is committed to the principles of employment equity and welcomes applications from all qualified candidates.

DENTIST ASSISTANT REGISTRAR

ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO

The governing body of the dental profession in the Province of Ontario is seeking an additional Assistant Registrar to fill a key role within its organization.

Reporting to the Deputy Registrar, the responsibility will encompass the management of important statutory activities of the College in the area of Complaints, Discipline and Practice Assessments as well as acting as Secretary to one or more committees of Council.

To qualify, candidates must be licensed or be eligible to be licensed to practise dentistry in Ontario.

In addition to experience in private practice, candidates may also have gained broader exposure in business, government or the academic field. Solid organizational & administrative capabilities will be complimented by excellent interpersonal and communication skills. Proficiency in the French language would be an asset.

The College provides a collegial environment and would be of interest to those comfortable in a team environment.

Compensation includes an excellent benefit package.

The Royal College of Dental Surgeons of Ontario is an equal opportunity employer.

Please submit your written application and resume in confidence before September 30, 1992 to:

The Registrar
The Royal College of Dental Surgeons of Ontario
5th Floor, 6 Crescent Road
Toronto, Ontario
M4W 1T1 (08/09)

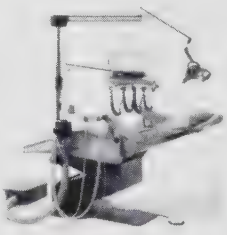
Equipment Sales, Service

ALBERTA: For sale spaceline for D. Dental Unit includes: chair, light, tray, X-ray, built-in ultrasonic scalar, two high speed hand pieces (hand pieces included, one fiber-optic), one slow speed hand piece (hand piece included), high volume suction, saliva ejector and cuspidor. Brand new, asking $20,000. Contact: (403) 657-3456 (B), (403) 657-3409 (R). (06/08)

ONTARIO - Wawa: For sale Quantiflex Nto. machine and an Ellman Dento'surg. with attachments. Please call (705) 856-2424. Any reasonable offer accepted. (08/08)

EQUIPMENT FOR SALE
Cox Rapid Heat Transfer Sterilizer and one extra drawer, **asking $1750.** Phase Contrast Microscope with High Resolution internal camera and nineteen inch monitor complete with all equipment required. **Asking $3000.**
Call (613) 332-1155 for more information on both these items, **ask for Merne.** (07/08)

CLINIC II



California Chair with Auto return, arm sling, Unit - 3 Handpiece Automatic, Syringe, View Box, Chairmounted light, Cuspidor with demand bowl rinse, cup filler. Assistants 2 H.V.E. Saliva Ejector, Syringe Foot control, J. Box with controls for easy hook up. Cushions your choice - 25 colors. Retail - $5,325. Cash Discount - $3,995. Financing available. Top only - $1,250. Cash Discount - $750.

Additional Options: • Faro Light - $425. • Fiad Light - $325. • Slow-Speed Air Motor - $200. • Fiber Optic Light Source - $250. Installed.
All prices FOB factory Anaheim.

Dansereau Health Products
559 South Rose St.
Anaheim, CA 92805
(714) 776-5357
(800) 423-5657 (USA & Canada)
FAX (714) 776-4652 (04/08)

Vacation Rentals

LONDON FLATS
for your London stay. Consider our London flats near the Chelsea Bridge/Battersea Park. Elegantly furnished, centrally located with a 2-hour maid service, Monday through Friday. Flat 18 accommodates five people in three bedrooms with bath/shower and fully equipped kitchen. Flat 16 accommodates three people in two bedrooms, bathroom/shower, lovely lounge and dining room and fully equipped kitchen. Can arrange theatre tickets. Contact evenings for brochure: **Mr. Thomas Moore, Telephone: (801) 393-9120, Fax: (801) 393-3024; or P.O. Box 12086, Ogden, Utah 84412 U.S.A.** (10/10)

Meetings & Announcements

THE 14th ANNUAL FLORIDA DENTAL MEDICAL LEGAL & PODIATRIC MEETING, BOCA RATON, FLORIDA

Place - Embassy Suites Hotel, Boca Raton, Florida
Dates - Dec. 21, 1992 - Jan. 2, 1993
Fee - $250 (US) by Oct. 15 1992
$275 (US) after Oct. 15, 1992
Sponsored by
The Florida Health Seminars
*15 hours of continuing dental education credits available.
Special hotel rates, air rates, and car rental rates available.
For information please contact seminar co-ordinator:
Linda Golnick, 4818 South Knoll Court, West Bloomfield, Michigan, 48232 U.S.A. (313)681-0211 (08/10)

Miscellaneous

BURNED OUT?
Over extended, bored, fed up with your current situation? Use this opportunity and your expertise to become financially independent. Get involved as other professionals have in the U.S. and Canada. Call (416) 332-4501 (10/13)

U.S.A. IMMIGRATION LAW

William Newell Siebert,
Attorney at Law.
307 North Michigan Avenue,
Suite 915, Chicago, Illinois 60601
312-329-0646
Practice limited to U.S. Immigration Law Since 1969 (10/12)

Brief Prescribing Information

Lipactin®
GEL

(Heparin sodium – Zinc sulfate)
Symptomatic treatment of
Herpes Simplex 1 (cold sores)

ACTION
Lipactin is composed of heparin sodium and zinc sulfate for topical application. Topical application of heparin sodium produces accumulation of the heparin molecules in the corium of the skin while insignificant amounts are absorbed through the skin. Oral administration of heparin sodium is associated with negligible anticoagulant effect as heparin is immediately metabolized in the gastrointestinal tract and not absorbed from aqueous solution.

Absorption of zinc sulfate through broken skin when applied in the concentrations used in **Lipactin** does not produce significant increases in serum and tissue concentrations of zinc.

Clinical studies have indicated that **Lipactin** significantly reduces the duration of pain associated with HSV 1 infections when compared with placebo. There is also a statistically significant increase in the rate of healing of perioral and lip lesions when compared to placebo preparation.

INDICATIONS
For the relief and management of symptoms due to lip and perioral infections of Herpes Simplex Virus type 1. This includes Herpes labialis, Herpes febrilis, fever blisters and "cold sores".

Early initiation of therapy, within 3 days of the onset of signs and symptoms of infection or reinfection, has been found to produce faster healing than treatment commenced after 3 days of symptoms.

Treatment should be continued until healing is complete or to a maximum of 14 days, whichever comes first.

CONTRAINDICATIONS
Lipactin (heparin sodium – zinc sulfate) is contraindicated in individuals who are hypersensitive to any of its components.

WARNINGS
FOR EXTERNAL USE ONLY
Lipactin Gel is NOT for ophthalmic use. Not recommended for use in children or in pregnant women unless on the advice of a physician.

PRECAUTIONS
If the symptoms of the infection persist or become more severe or wide-spread with **Lipactin** treatment, use of the medication should be discontinued and a physician consulted.

ADVERSE REACTIONS
In a few cases, a mild transient burning sensation has been experienced at the site of application.

DOSAGE AND ADMINISTRATION
Apply **Lipactin** to the affected area(s) 3 to 6 times a day. A sufficient quantity of the gel should be applied to adequately cover all lesions and a margin of healthy skin surrounding them.

Therapy should be initiated as early as possible following the onset of signs and/or symptoms, i.e. tingling, burning, vesiculation etc. and may continue for up to 14 days.

AVAILABILITY
Each gram of gel contains: heparin sodium 160 USP units and zinc sulfate 5 mg. Tubes of 3 grams.

Product monograph available on request.

CIBA-GEIGY SELF MEDICATION PRODUCTS
CIBA-GEIGY CANADA LTD.
Mississauga, Ontario
PAAB CCPP

ORAL-B INDICATOR™ TOOTHBRUSH. THE PERSONAL REPLACEMENT SIGNAL.

Most of you suggest changing a toothbrush about every three to four months.

But patients have a tendency to keep their brushes splayed beyond recognition.

Until now.

Presenting the one and only Oral-B INDICATOR™ toothbrush.

It actually tells your patients when it's time to be replaced (of course, this will vary depending on personal brushing habits and techniques).

When the blue band of INDICATOR™ bristles fades halfway from top to bottom, roughly in three months, it's the signal that the toothbrush has called it quits. It's worn out. Tired.

Now for the first time ever, there's a toothbrush that actually helps patients act on your recommendations.

Oral-B INDICATOR™ toothbrush.

Oral-B® INDICATOR™

See us at booth No. 526 at the CDA Convention

WE'RE NOT SUGGESTING THAT CHEWING GUM SHOULD REPLACE BRUSHING AND FLOSSING. But Trident sugarless gum is serious about dental care. Serious enough to fund dental research and development, year after year. Serious enough to formulate Trident with 15% xylitol, the natural sweetener that decay-causing bacteria can't metabolize. And Trident's great taste makes it a welcome alternative to sugary snacks. So make a valuable addition to your patients' oral care program.

Recommend Trident with xylitol. The gum that dental professionals can take seriously.

Call **1-800-263-9060*** to order Trident for your patients. 180 packages of gum for $40.00, a 60% savings. Delivery in 2 weeks. *Call 9 am - 5 pm E.S.T.

See us at booth No.'s 602, 604, 606 at the CDA Convention

September
Septembre
1992
Vo. 58
No. 9

JOURNAL

Canadian
Dental
Association

L'Association
Dentaire
Canadienne

If undelivereable
to Addressee
RETURN TO SENDER
Return Postage
Guaranteed

Si non livrable
au destinataire
RETOURNER À
L'EXPÉDITEUR
Port Payé

What's so distinctive about Ash Temple service?

At Ash Temple, we recognize that when you need supplies, or your equipment malfunctions, you can't afford to wait. You need fast, efficient response.

That's why it's good to know you can rely on the people at Ash Temple.

Ash Temple's team of experts is composed of people who combine seasoned experience with the latest knowledge of industry developments.

Our service commitment is a combination of three important elements:

- An outstanding dedication to promptness and efficiency on the part of all our staff from coast-to-coast.
- A distribution infrastructure devoted to providing consistent reliability with high order fill rates unrivalled in Canada.
- An enviable reputation earned over years of service to the Canadian dental profession.

Ash Temple can provide the service you require from within your local community.

Call us. We're there when you need us.

Ash Temple LIMITED

Keeping you a step ahead.

John T. Adamski, V.P. & Toronto Branch Mgr. With Ash Temple 14 years.

Connie Runions, C.A., Controller 3 years with Ash Temple.

The Ash Temple Companies — Ash Temple Limited, Servident, A-Tech, Microbex Aseptics, Acrylium

ASH TEMPLE SERVICES:

Ash Temple has 14 strategically located, full-service depots — Halifax, Saint John, Quebec, Montreal, Ottawa, Toronto, Hamilton, London, Winnipeg, Regina, Calgary, Edmonton, Vancouver, Victoria

In addition, there are sales and service staff located in 11 other communities across Canada.

All locations stock over 100,000 consumable items.

Ash Temple can assist you to —

- **locate dental practice sites**
- **search for associates**
- **secure staff**
- **design your office**
- **help in selling your practice**

Ash Temple's Equity Program allows you to set up a convenient schedule for delivery of supplies with a variety of payment options, volume discounts and rebate plans.

The annual Ash Temple Equity Grant supports dental associations and dental faculties of Canadian Universities.

September 1992

JOURNAL

JOURNAL STAFF

Executive Director
A. Jardine Neilson

Editor
Dr. P. Ralph Crawford

Managing Editor
Terence Davis

Assistant Editor, Art Director
Louise Després Jones

Assistant Editor, Production
Antonia Papadakou

Scientific Editor (English)
Dr. Robert S. Turnbull

Scientific Editor (French)
Dr. Pierre C. Desautels

CONSULTING EDITORS

Anesthesiology
Dr. Earle Young

Dental Materials
Dr. Peter T. Williams

Medicine
Dr. George K.B. Sandor

Forensic Dentistry
Dr. Robert Dorion

Infection Control
Dr. John Hardie

Pharmacology
Dr. David M. Paton

Practice Management
Dr. Bob Brandon

Nutrition
Mrs. Nina Burgess

Canadian Dental Hygienists Association
Ms. Carole Worobey

Canadian Dental Assistants Association
Ms. Diane Pike

SPECIALTY EDITORS

Endodontics
Dr. W.H. (Bill) Christie

Oral Maxillofacial Surgery
Dr. David S. Precious

Oral Pathology
Dr. J.H.P. Main

Orthodontics
Dr. K.E. Glover

Pedodontics
Dr. Victor Legault

Periodontics
Dr. James E. (Jim) Stakiw

Prosthodontics
Dr. Michael MacEntee

Public Health
Dr. Donald Lewis

Radiology
Dr. Colin Price

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa, Ont.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds. In Canada - $48 (+ GST); United States - $53; all other - $58. Subscriptions are for 12 issues, not necessarily conforming with the calendar year. All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the *Journal*. Publication of an advertisement does not necessarily imply that the Canadian Dental Association agrees with or supports the claims therein.

ISSN 0709 8936

PRINTED IN CANADA

Call CDA for information and assistance toll-free at:

1-800-267-6354

CDA FAX Nos: 1-613-523-7736
1-613-523-5891

All matters pertaining to advertising should be directed to:

Keith Health Care Communications
1382 Hurontario Street
Mississauga, Ont. L5G 3H4
ATTN: Trish Sullivan
Advertising Representative,
or, Ola Murphy
CDA Access Representative

Tel: (416) 278-6700
Fax: (416) 278-4850

Member

American Dental Editors' Association
Canadian Circulations Audit Board

CDA MISSION STATEMENT

The Canadian Dental Association is the authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada, — dedicated to meeting member needs, and the promotion and provision of optimal oral health for Canadians.

The Journal of the Canadian Dental Association is published in both official languages except scientific articles which are published in the language in which they are received. Readers may request the Journal in the language of their choice.

CDA EXECUTIVE COUNCIL

President
Dr. B. Dolansky
Ottawa, Ontario

Past President
Dr. L.S. Allen
Winnipeg, Manitoba

President-Elect
Dr. R. Wenn
Charlottetown, P.E.I.

Vice-President
Dr. B. Sigfstead
Edmonton, Alberta

Dr. J. Brookfield
Kirkland Lake, Ontario

Dr. B. Dolman
Montréal, Québec

Dr. J. Diggens
Vancouver, B.C.

Dr. T. Gushue
St. John 's, Nfld.

Dr. B.E. White
Saskatoon, Saskatchewan

Dr. R. D. Sandilands
Edmonton, Alberta

CDA STAFF

1815 Alta Vista Drive,
Ottawa, Ontario K1G 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Executive Director
A. Jardine Neilson

Manager, Executive Services
Sandra Déziel

Coordinator, Board and Executive
Suzanne Burton

PROFESSIONAL SERVICES

Director, Education and Accreditation and Professional Services
Brian Henderson

Associate Director, Education and Accreditation
Susan Matheson

Coordinator, Accreditation
Gay MacQuarrie

Coordinator, DAT
Danuta Askew

Coordinator, Purchaser Information Program
Coordinator, CDAnet
Patricia Duminy

ADMINISTRATION

Director of Administration
Joel R. Neal

Business Manager
Shelagh Dunlop

Membership Secretary
Lydia Allison

COMMUNICATIONS

Director of Communications
Linda Teteruck

Librarian
Martha Vaughan

Manager, Membership Services
Carol Anne St. Laurent

Manager, Information Services
Lisa Burke

For Specialty Splints, Talk to the Professionals at Space Maintainers

Orthodontic diagnosis and treatment have become subjects of great interest for the general practitioner today. Look to Space Maintainers Laboratories Canada Ltd. for the experienced, professional support personnel that ensures success.

Expertise You Can Count On

Our outstanding Splint Department is staffed with well-trained, experienced and creative technical specialists — well versed in the complete range of today's splint techniques. And, our ongoing staff training program keeps them and Space Maintainers on the leading edge of splint technology.

All of Today's Popular Designs

Surgical, TMJ or Bruxism Splints? Special or custom requirements? Nightguards or Athletic Mouth Guards? The Space Maintainers Splint Department is your complete source for them all.

Outstanding Personal Service

You can rely on Space Maintainers for outstanding personal service — every day, on every case. Consider all we have to offer:

- On-target technical support
- Fast turnaround time; special rush service
- Canada's most extensive free pickup and delivery serving over 10,000 centres
- All work 100% guaranteed for 90 days against defective materials and craftsmanship

Your Total Orthodontic Source

Whether you need removable appliances, retainers, fixed appliances, functional appliances or splints and mouth guards, Space Maintainers is your Orthodontic Specialist. After all, orthodontics is our only business! Call us for all the details on how Space Maintainers can deliver the best in Orthodontic service to you.

SPACE MAINTAINERS
LABORATORIES CANADA LTD.

TOLL FREE 1-800-661-1169
SANS FRAIS 1-800-267-7040

Victoria / Vancouver / Vernon / Edmonton / Calgary / Saskatoon / Ottawa

JOURNAL
Canadian Dental Association
L'Association Dentaire Canadienne

September 1992 Vol. 58 No. 9

Interview

Meet the Dolanskys 711 P. Ralph Crawford, BA, DMD

Specialty Features

Does HIV Cause AIDS: A Review 721 John Hardie, BDS, M.Sc., FRCD(C)

Canadian Dentists' Insurance Program: Disability Facts and Myths 729 Barry McNulty

The Teaching of Geriatric Dentistry in Canada 731 J.R. Vincent, BA, DDS, M.Sc.; P. Massicotte, BA, DMD, MA; R.Y. Barolet, B.Sc., B.Eng., DDS, MSD

Scientific

Nutritional deficiencies and gastrointestinal disorders in the edentulous elderly: A literature review 738 D. Laurin, PDt, M.Sc.; J.M. Brodeur, DDS, PhD; N. Leduc, PDt, PhD et al

Denture identification: The University of Manitoba's denture identification service 743 B. Wong, DMD; C. Fogel, DMD; D. Galan, DMD, M.Sc. et al

Surface disinfection of saliva-contaminated dental X-ray film packets 747 G.V. Pakota, DMD, Dip. Oral Rad., M.Sc.; K. Komiyama, DDS, PhD

Facial neuralgias: A clinical review of 34 cases 752 J.H.P. Main, BDS, FRC (Path.), FRCD; R.C.K. Jordan, DDS; R. Barewal

Risques et bénéfices de l'ablation des troisième molaires incluses: Revue critique de la littérature — Partie I 756 D.S. Precious, DDS, M.Sc., FRCD(C), FICD, Dip. ABOMFS; P. Mercier, DDS, FRCD(C), Dip. ABOMFS; F. Payette, DMD

Cover: Harvest, Brant, Alberta. (PHOTOGRAPH COURTESY OF INDUSTRY SCIENCE AND TECHNOLOGY CANADA)

Departments

687 Letters to the Editor
691 Editorial
693 President's Column
694 Announcements
695 News Update
699 Advertisers' Index
700 A Year of Celebration
703 Practice Management & Success
705 Book Reviews
707 CDA Convention
719 Let's Talk
720 Library
761 CDA Access Ads

Naturally, there's something in it for your patients.

When people started brushing with baking soda over 100 years ago, it was for its cleaning and deodorizing qualities.

Now Colgate has developed a new formula that combines these natural benefits with proven fluoride protection.

Colgate* Toothpaste With Baking Soda.

With its gentle abrasion, our new formula has proven effective against supragingival plaque. And because of its alkalinity, it also helps neutralize plaque acid.†

Recent comparison studies have shown that baking soda alone is at least as gentle on enamel and exposed dentin as other abrasives in the major toothpastes studied.†

What's more, Colgate ground the baking soda in its new toothpaste to pharmaceutical grade—considerably finer than the version used in the comparison test.

All this to ensure that our new toothpaste is a safe and effective way to clean and protect your patients' teeth. We've even given it a natural mint flavour, so there's no uncertainty about taste.

New Colgate Toothpaste With Baking Soda. Your patients will be glad to know there's something in it for them.

*TM Reg'd COLGATE-PALMOLIVE CANADA INC.

†References available on request.

Letters

Advertising

In the "President's Column" published in the June 1992 issue of the *Journal* (Professionalism, Vol. 58, p. 439), Dr. Les Allen asks what it means to be a professional and then proceeds to answer his own question: A professional is one who does not advertise. And by implication any dentist who chooses to advertise is less than professional.

Yes, advertising can be crass and unprofessional, but it can also be beneficial. Advertising is an effective method of conveying valuable information to the public, such as office hours, languages spoken, wheelchair accessibility, and services available.

CDA's Dental Awareness Program may be effective when it comes to increasing the public's awareness of the importance of oral health, but it is of no use to someone seeking a dentist with evening or Saturday hours.

In addition, given the mobility of our population, people today often do not have a network of friends and relatives to offer recommendations on a dentist. Advertising makes it possible for people to find the dentist in their area who offers the services and hours most convenient for them.

Dr. Allen contends that advertising will tarnish our image. In whose eyes? Several studies have shown the public to be more favorably inclined toward professional advertising than professionals are themselves.[1,2] Consumers like information-oriented advertising because it helps them go through the choice process and to discover what services are available to them.

Dr. Allen admonishes us that dentists are professionals, not entrepreneurs. I was unaware that the two are incompatible. My *Funk and Wagnalls* defines an entrepreneur as "one who undertakes to start and conduct an enterprise or business, usually assuming full control and risk." Ask a new graduate with a $100,000 bank loan about risk. I submit that, like it or not, anyone who chooses to open a dental practice today is an entrepreneur.

The patients of the '90s are far removed from those of former years. For better or for worse, today's patients are more critical, more demanding, and more ready to seek treatment elsewhere if they are not satisfied. Gone are the days of the all-knowing doctor and the compliant patient. For this reason, Dr. Allen's suggestion that advertising leads to dentists fighting among themselves to grab patients from their colleagues makes no sense. Patients are not possessions that can be stolen by other dentists. This idea of ownership of patients is a paternalistic, condescending concept that has no place in dental practice today. Patients come to see us because they choose to. I doubt if any advertising can entice a satisfied patient to leave a dentist. On the other hand, if a patient is dissatisfied, advertising may help that individual to find a new dentist.

The most disturbing aspect of Dr. Allen's commentary is his implication that dentists who advertise are unethical, as evidenced by his statement, "I question whether the crown was actually required by the patient or if it was needed, instead, to pay for the advertisement." I know dentists who have chosen to advertise, and in every case I have absolutely no doubt about their ethics or professionalism.

As an individual dentist, Dr. Allen is entitled to his opinion. As the president of the Canadian Dental Association, however, he misuses his platform when he impugns the integrity of colleagues who may choose to engage in an activity that is legal, ethical, and has the potential to provide a useful service to the public.

As an alternative to Dr. Allen's blanket condemnation of individual advertising, I would offer the following guidelines for those dentists who may be considering the use of advertising.

(1)Advertising should be informational – outlining availability of services, special skills or expertise, range of fees for routine service – not persuasive.

(2)A hard sell is not recommended.

(3)Don't mislead or deceive the public.

(4)Advertising should be tasteful.

Harry Hersh, DDS, FRCD(C)
Cambridge, Ontario.

References

1. Hite, R.E. and Bellizi, J.A. Consumers Attitude Towards Accountants, Lawyers and Physicians with Respect to Advertising by Professionals. *Journal of Advertising Research* 26:45-54, 1986.
2. Shapiro, I.A. and Majewski, R.F. Should Dentists Advertise? *Journal of Advertising Research* 23:33-37, 1983.

Amalgam Fees

The points made by Dr. Lorne Berman regarding amalgam fees in the May issue of the *Journal* ("Amalgam Fees," Letters/Courrier 58:351-353, 1992) seem to be based on a questionable premise: that it is incumbent on us to let certain high-profit procedures subsidize others which it is our duty to perform at a loss.

The formula on which the Alberta fee guide structure was originally based sought to provide a fair and reasonable compensation for all procedures, taking into account the varying degrees of difficulty and responsibility associated with different types of services. In this way, any financial bias toward recommending certain treatments can be minimized, so that the best interests and needs of the patient are the only factors affecting what treatment is recommended.

Unfortunately, adjustments of the fees have not kept up with the advances and changes in technology, so that some fees may now be unrealistically high, while others, such as those for amalgams or posterior composites, are unrealistically low.

If Dr. Berman believes, as he seems to suggest, that we owe it to the public to provide certain services at an artificially-low fee, surely it would be more logical to make this determination based on the patient, rather than the procedure. Would it not be better to provide necessary services to truly needy patients at a cut rate instead of restricting these subsidies to certain procedures, regardless of the means of the person (or the insurance company) paying for the

procedure? Is an amalgam restoration more necessary than the wisdom teeth extractions or root canal treatments that Dr. Berman suggests should provide the excess profit needed to subsidize the unprofitable amalgam?

I would suggest that Dr. Berman consider the public perception of a profession that encourages, by subsidization, a treatment that is becoming increasingly suspect as a potential health hazard in the eyes of many people.

Brian D. Read, B.Sc., PhD, DDS
Calgary, Alberta

■ **RCDS – Class of 1888-1889**

I enjoyed your recent account of early dental education in Ontario ("Early Dental Education," A Year of Celebration. 58:440, 1992). Can you tell us who the two "jokers" on the far right of the photograph are? I guess there are some in every class.

Jocelyn Zuck, DDS
Weston, Ontario.

Editors Note

We're sorry to report that we can't identify a single person in the group photo. Perhaps our readers can help us out. The photograph was donated to the Museum of the Canadian Dental Association without identification. And yes, we imagine there are similar "jokers" in most dental classes – some things never change.

■ Infection Control

I am very concerned about the manner in which the issue of infection control and instrument sterilization has been handled by the media in general and television in particular. The recent television exposé on the lack of proper dental office infection-control protocol was, in my estimation, a ratings-seeking hatchet job on the dental profession.

I am infuriated that dentistry is too frequently singled out by the media to bear the brunt of scathing criticism, while more guilty offenders are simply ignored. Please do not misunderstand me. I am avid in my support for the complete management of sterility and disease control. I strongly believe that handpiece sterility, for example, is not optional. I am, however, dismayed that dentistry has been constantly implicated in the media as the villain in the sterility debate. Many other sources of infection are completely ignored, because they are not as popular to bash and do not sell as much air time or magazines.

Have manicurists, for example, ever been considered by the media as a source for the spread of disease. Are the media not aware that probing under finger and/or toenails with scissors and instruments that are not only non-sterile but probably dirty is unsafe? How about barbers and hairdressers? Do you suppose even for one moment that the scissors or combs they use are ever sterilized? Yet these people go about their business without being scrutinized by the media, and they are not questioned about sterility by their clients.

How many times have you had to ask a waiter to replace a dirty fork or knife while eating at a restaurant? This should alert one to the fact that the cutlery in most restaurants is definitely not sterile, and in many cases not even sufficiently clean to be used. Yet do we ever see a program about the dangers of inserting dirty silverware into our mouths? The answer is a resounding no!

Dentists, for the most part, are diligent in their efforts to clean and sterilize their instruments. As a profession, we can feel proud that we have put the issue of sterility in the forefront. Every journal, dental catalogue and recent publication has dealt, to some extent, with the availability of newer and better equipment and chemicals to achieve higher levels of sterility. Can any of the other disease transmission "offenders" boast the same claim? Why, then, is there not public outcry at the apparent disregard for sterility exhibited by restaurants, manicurists and barbers. The answer is simple. The media has chosen to overlook these groups. It gets more attention by bashing the dental profession. It feels that dentists are unpopular and that the public is always ready to hear adverse information about dentistry.

In closing, let me say that if the buyer is to beware, then let him not be misguided or misled by the bias of our media. More damage than good is done by alienating the public against dentistry in the guise of being concerned for the public health.

Harvey J. Branicky, DDS
Weston, Ontario.

■ I would like to congratulate Dr. John Hardie for his recent article on infection control ("Concerns Regarding Infection Control for Dental Practice." *J Canad Dent Assoc* 58:377-386, 1992).

It is a rational, logical, commonsense approach to the problem, and has certainly ended a great deal of confusion on my part.

Dr. Hardie has separated myth from fact, and hysteria from rational thought, and provided a set of guidelines by which the average general practitioner can live.

Harold A. Grammer, DDS.
Willowdale, Ontario

■ Do I need a dental degree to comment on how microbes act in dental equipment? What about a plumbers licence before I comment on microbes in toilets? How microbes survive and are transported within an environment, how susceptible they are to physical and chemical agents, and whether they remain infective under various conditions are difficult microbiological issues best addressed by those whose education and experience is dedicated to this area of science. However, in dentistry, the topic has not been dominated by leading research microbiologists. Instead it's been championed by leading dentists and dental professors, some of whom have supplemented their dental training with enough basic microbiology to be called "infection control experts." Practitioners have always resisted whenever someone has linked common medical practice to the spread of disease. This was true for washing hands, using disinfectants, wearing gloves, and – now – heat-treating contaminated equipment.

Dental handpieces suck blood and saliva inside, contaminating everything from air turbines, through air exhaust lines, to the dental units. This conclusion is supported by studies at Loma Linda University's School of Dentistry and School of Medicine, the U.S. Air Force, and various university researchers who have presented data at recent national meetings in the United States. But some dental experts still maintain that putting chemicals on the outside of such equipment eliminates the risk that patient material will be released from its interior during reuse. Or, they take the even more incredible position that patient material can't get inside, even though the equipment isn't sealed and it actually pulls a vacuum when positive air flow is interrupted. Now, an ignorant patient may say that it's illogical to state that no one can be infected by the equipment. The dental control expert, however, can

write a scholarly article to this effect and convince dentists that the argument makes sense.

To support such illogic, one can always cite the fact that retrospective epidemiological studies of HBV outbreaks in dentistry have never once implicated contaminated dental equipment. Never mind that it's impossible to prove, after the fact, that a patient's HBV infection originated, for example, with a reused prophy angle (used on the dentist or another patient) as opposed to the dentist bleeding in his or her mouth. And never mind that prospective epidemiological studies, which have implicated semi-critical devices in cross-infection in medicine, have never been done in dentistry. I can always brag on the prizewinning racehorse in my barn – so long as no one looks to see that I don't own a horse at all.

At the recent round-table discussion on cross-infection risks in dentistry, sponsored by the American Academy of Microbiology, which I chaired at the annual meeting of the American Society for Microbiology last May, Walter Bond announced that the Centers for Disease Control (CDC) will soon publish updated infection control guidelines. They will no longer recommend chemical disinfection of dental handpieces. Dr. Timothy Ulatowski, associate director for general devices at the Food and Drug Administration (FDA), said at that meeting: "What has been acceptable practice in the past is no longer acceptable." Dr. Ludwig Liebsohn, past president of the Academy of General Dentistry (referred to by Dr. Hardie in his response to Drs. Arenson and Sher's letter, Vol. 57, No. 7, p. 520), recently led that organization to officially adopt this new standard of practice for handpieces. The ADA also recently published recommendations advocating heat treatment of handpieces (*ADA News*, March 9).

My information on the infection control practices of dentists was based on numerous independent sources, including the University of Texas School of Dentistry and the U.S. Air Force. My conclusions were later confirmed by an extensive survey by Dr. Gordon Christensen, which was published in *JADA*. Therefore, Dr. Hardie's statement that I admit basing my opinion solely on sources provided by commercial interests is untrue. Denouncing information one considers unscientific on the one hand, while publishing hearsay on the other, is hypocritical. Moreover, when practitioners say others are tainted by commercial interests, when their own arguments against autoclaving handpieces are largely motivated by economic concerns, this is also hypocritical. Furthermore, it's enigmatic that the people who bristle when someone says most dentists don't heat treat handpieces between patients are the same ones who argue that it's a needless exercise.

For the record, federal law prevents me, as a federal employee, from making so much as a dime from honoraria. I have not received any financial gain (but considerable loss) for my efforts in this area. No doubt, there are some who have commercially profited from the issue, but many are speaking up solely for the good of the profession. It's a shame that dentistry has to be dragged through epidemics of AIDS, hepatitis and other gravely serious infectious diseases kicking and screaming over sterilizing blood-contaminated equipment. This is especially sad when dentistry could take the lead and become the shining example of excellence in asepsis. Thanks to the manufacturers of dental handpieces and their various attachments, it is now possible for every instrument that enters a patient's mouth to be either discarded or cleaned and heat treated. For many years to come, few other areas of medical practice will be able to make that claim for every device entering a patient's body.

David L. Lewis, PhD
Athens, Georgia

■ Author's Response

Obviously, Dr. Lewis has taken umbrage to the fact that he does not have a dental degree. It is appropriate that the reason for this observation be known to our colleagues. In a letter published in the *ASM News* (57:393, 1991) Dr. Lewis stated: "On the basis of my surveys of general practice dentists and of industry sources (dental supply and repair companies) fewer than one per cent of dentists currently perform adequate infection control measures of handpieces."

To me, this implies that Dr. Lewis has given himself the authority to assess standards of dental practice in collaboration with dental sales and repair personnel. This conclusion about dentists by a non-dental scientist with lay coworkers appeared in a non-dental publication. These are the facts. They are revealed not to denigrate Dr. Lewis, but to illustrate the basis of one of his published assumptions. No doubt, Dr. Lewis has the professional qualifications to assess the microbiological flora of toilet bowls, but does he have the experience and training to judge the quality of the plumbing?

Practising dentists have been aware for decades that handpieces are contaminated by blood, saliva and other debris. Dr. Lewis has confirmed this in recent studies and recommended that handpieces be sterilized. He justifies such action since it is supported by CDA and ADA. However, before Semmelweis recommended hand washing, he had demonstrated that it would dramatically reduce the incidence of infection following childbirth. To date, Dr. Lewis and his colleagues have failed to indicate that handpiece sterilization will reduce significantly the rate of dental nosocomial infections.

For the past two decades, published reports on providing dental treatment to severely compromised and immunosuppressed patients have emphasized the dangers of endogenous as opposed to exogenous infections. This supports my belief that the risk of cross-contamination to the average ambulatory dental patient has been exaggerated. However, I will support handpiece sterilization if it is demonstrated using reproducible methods that:

- the dental handpiece is a vector for the transmission of human pathogens.
- such pathogens, recovered from the handpiece, are capable of causing infection in secondary hosts.
- handpiece sterilization is the only variable that eliminates such cross-contamination.

Until this occurs, I will continue to believe that most current dental control recommendations are based on a misperception of the risks and a perceived need to respond to political and media pressure.

John Hardie, BDS, M.Sc., FRCD(C)
Vancouver, B.C.

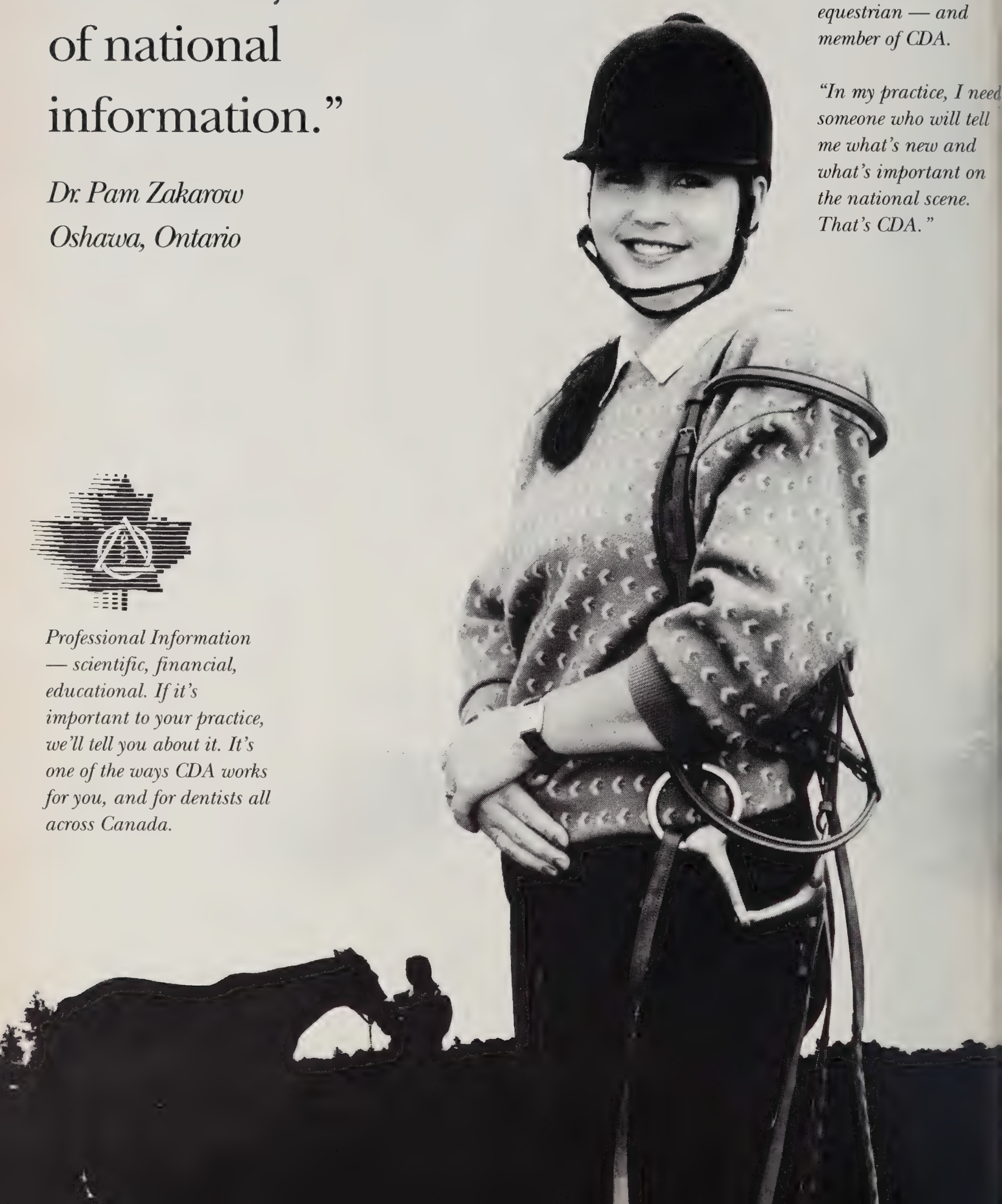
KNOW YOUR
BLOOD PRESSURE
by Heart

"CDA is my source of national information."

Dr. Pam Zakarow
Oshawa, Ontario

Dr. Pam Zakarow: General practitioner, equestrian — and member of CDA.

"In my practice, I need someone who will tell me what's new and what's important on the national scene. That's CDA."



Professional Information — scientific, financial, educational. If it's important to your practice, we'll tell you about it. It's one of the ways CDA works for you, and for dentists all across Canada.

THE STORY THAT SHOES TELL

Not long ago, I had to buy a pair of shoes. Shopping for clothes or footwear isn't one of the joys of my life – most people know that I am not the fashion king of dentistry, but rather the prince of polyester. However, shoes are one of those things that you just can't do without, like it or not.

Dr. P. Ralph Crawford

I chose a shopping centre that stayed open in the evenings, and headed for one of the main department stores. Once I'd located the shoe department, it didn't take long to find a shoe in a style, and an appropriate price range, to suit my simple tastes. Clutching the single shoe, I began looking around for a clerk. That's when my problems began. There wasn't a salesperson in sight, and I wasn't about to go into the storeroom to hunt down a matching pair of shoes in my size.

After waiting a few minutes, I left the shoe department, and the store, and walked to the competition's premises at the other end of the mall. The same scenario repeated itself. I found a shoe that suited me, but, again, not a single salesperson was available to close the sale. I looked and waited in vain. After a few minutes, I left the store, vowing never to walk through its doors again.

Feeling dejected and unwanted, I wandered along the mall, randomly peering into windows. By chance, I came across a small shoe store. It looked busy, and there were sales people in plain view, so I tempted fate, went in, and started looking at the shoe display. Within a matter of seconds, a polite voice gently uttered those magic words: "Sir, can I help you?"

When I nodded my head and said, "Yes, please," I was immediately shown various styles of shoes and invited to try on as many as I wished. Demonstrating patience and concern from start to finish, the clerk completed the fitting and finalized the sale. I left the store feeling as if someone cared about my needs, my wants and my money. I'd also spent about twice as much as I'd intended to spend at either of the other two stores. Even so, the next time I need a pair of shoes, I won't hesitate to return to the shop and seek out the same clerk. Furthermore, if asked, I would feel totally comfortable about recommending the establishment to my friends.

There is a lesson to be learned here. In fact, the saga of my shoes has a direct relationship to the practise of dentistry. Dentists, like the shoe departments in the department stores I visited, are having a difficult time attracting enough people through their doors. The economic recession, an oversupply of dentists, a decreased caries rate, and an increase in dental health awareness and self care, have all contributed to the problem.

To put it simply, this is not the time to cut back on customer services. The two major department stores, on a mid-week evening, undoubtedly chose to cut costs by reducing staff to a bare minimum. They subsequently lost a sale. And if I walked out of these stores in disgust, how many other shoppers did the same?

Thinking about the relationship between shoes and dental practices, I remembered an event that occurred during my first career, long before I entered dental college. At the time, I was involved in an interview process to hire a new staff member. The senior interviewer offered some advice: "Make sure you check the shoes of the candidates."

Curious, I asked what shoes had to do with the ability to fulfil the job requirements. "You can tell a lot about a person from their shoes," he said. "If shoes are well shined and cared for, you know the individual is diligent and has pride in who they are and what they do. If the shoes are neglected, you can expect the opposite. But the most important part are the heels. If only the toes are bright and shiny and the heels are scuffed and neglected, you can bet that person does only half a job – enough to impress and no more!"

I'm not sure how necessary it is, in today's corporate business world, for employment officers to keep track of shoe sales and shoeshines. But I am convinced that the success of any business, including a dental practice, depends on two critical factors.

The first is service. Dentists must be willing to meet the needs and wants of their customers – the patient's, in other words. These days, when patients are no longer lining up at dentists' doors to obtain treatment, nothing is more critical to patient satisfaction than an efficient, pleasant staff. People who make the patients feel welcome, and that their overall well-being is a matter of concern.

The second is quality. It is essential for dentists to strive for perfection. There is little excuse to abandon the search for perfection in any human endeavor, but to lose sight of it in the treatment of our patients is a disservice to our professional responsibility.

Bliss Carman, our great Canadian poet, stated this case rather well: "There is a passion for perfection which you will rarely see fully developed, but you may note this fact: that in successful lives it is never wholly lacking."

P. Ralph Crawford, BA, DMD
Editor of the Journal of the Canadian Dental Association

Tantum.
Your partner for fast relief of oral pain and inflammation.[1-3]

Tantum Oral Rinse is a partner you can rely on to give many of your patients prescription relief of oral pain and inflammation.[4] Tantum begins working on contact,[1-3] offering rapid relief that lasts for up to 3 hours.[4] Its topical application is designed to enhance patient compliance. Add clinically proven efficacy,[1-6] and you have the full picture of why Tantum may be an ideal partner for your practice.

Pr **Tantum** Oral rinse TM
(Benzydamine HCl Solution)

Prescription relief of oral pain and inflammation.

Ⓜ Official Mark of the Canadian Olympic Association

MEMBER PMAC PAAB CCPP

Innovation working for you™

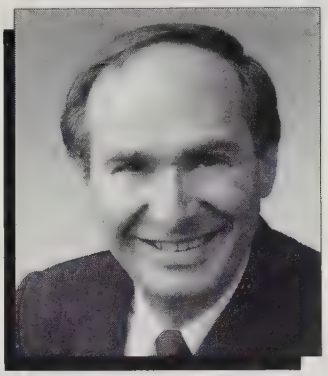
3M Pharmaceuticals
3M Canada Inc.
Post Office Box 5757
London, Ontario N6A 4T1

3M

Sponsor 1992 Olympic Games

PEOPLE POWER

Writing this, my first "President's Column," was supposed to be easy. After all, I had put together 12 such columns during my year as president of the Ontario Dental Association, and never suffered from writer's block. Equally important, I knew what I wanted to say, and was eager to communicate my ideas to the dentists of Canada.



Dr. Bernard Dolansky

But when I actually sat down with my writing pad, with nothing but a blank sheet of paper in front of me, it was hard to get the words to come out. I felt a little bit like the spouse of an oft-married celebrity – I knew exactly what was required of me, the challenge lay in making it interesting.

President's columns have been a regular feature in the *Journal* since Dr. P. Ralph Crawford penned the first one in December 1984. What could I write that hadn't been said before? How could I make that message interesting and vital? The answer that I came up with was to be myself, to speak from the heart about dentistry and CDA, about what my profession and my national association mean to me.

I have been a dentist for over 20 years. From the start, I divided my time between my private practice and the "politics" of organized dentistry.

Today, politics is a dirty word in Canada. People throughout the Western world are turning away from the traditional political parties and seeking new leaders, men and women with fresh ideas. Yet it's difficult to imagine where the dental profession would be without the contribution of our "politicians," the talented, hard-working dentists who devote so much of their time to our local, provincial and national associations.

Think about it. If CDA and the provincial bodies weren't there to represent us, if our dental politicians weren't looking after our interests, the face of dentistry might be very different. Perhaps...

- Infection control would be regulated by government in a senseless, draconian fashion.
- Treatment standards, as well as fees, would be set by the insurance companies.
- Many Canadian dentists would be employed directly by the insurance companies, or work for them indirectly through capitation-type plans.
- Dentists would have to pay $1 to $1.50 for each claim they transmitted through the insurance companies' electronic data interchange system, and they would have no control over how this data was ultimately used.
- The *Journal of the Canadian Dental Association* would not exist at all, or it would be run by a commercial publisher on a strictly for profit basis. Canada's clinicians and dental scientists would no longer have a national voice, and they would lose the advantages inherent in publishing their work in a respected, refereed journal.

The list of suppositions is endless, but there is no point in going through it from start to finish here. All I want to get across is that the dental profession in Canada was built on the foundation of organized dentistry, and it still rests firmly on this foundation today.

The cement that binds dentistry together and keeps us strong, our foundation, is people – the dedicated staff and busy dentists who have taken an interest in where their profession is now and where it will go in the future. As a result of their efforts, the foundation we laid when CDA was established, 90 years ago, has remained fresh, vital and free of cracks.

Knowing this, I am looking forward to my year as president of CDA – the national voice of organized dentistry in Canada. I am especially pleased about the opportunities I will have, over the next 12 months, to visit with dentists from one coast of Canada to the other, and talk to them about the future of our wonderful profession.

I will also enjoy – now that I am over my writer's block – communicating with the profession through this column. Over the next 11 months, I plan to use it as a forum to discuss the principles and issues facing Canadian dentistry. My intention is to keep Canadian dentists up-to-date on the positions and policies that are being discussed by CDA's executive council and board of governors, as well as to alert them to situations or events that could have a more immediate impact on their practices. Somewhere along the way, I may even take the opportunity to discuss some of my own views.

If I do my job well, each of these columns will be interesting and fresh. Many may be controversial. I welcome your comments.

Bernard Dolansky, BA, DDS, MS
President of the Canadian Dental Association

Announcements

NATIONAL HIGHLIGHTS

September 17-20, 1992
Canadian Academy of Endodontics
28th Annual Meeting
Victoria, British Columbia
Dr. Raymond Greenfeld
(604) 270-8754
Dr. Leonard Atkinson
(604) 592-2511

September 24-26, 1992
Canadian Academy of Prosthodontics
Canadian Academy of Restorative Dentistry
Joint Annual Meeting
Montreal, Quebec
Olga Chodan (514) 398-7221
fax (514) 398-8900

October/Octobre 1992

October 1-4: Adhesion Dentistry Bermuda Style with Dr. R.E. Jordan, Dr. John Kanca and Mr. Byoung Suh. Registration for the lectures must be made through Clinical Research Dental, P.O. Box 28040, London, Ontario, N6H 5E1, or call, 1-800-265-3444 or (local) (519) 641-3066.

October 8: How Does Health Technology Assessment Influence Health Policy Formation? The first in a series of Regional Symposia, being held at the Westin Hotel, Ottawa, Ontario. For details, contact: Ms. Janet Comis, CCOHTA Project Manager, tel: (613) 226-2553; or fax: (613) 226-5392.

October 14-17: 2nd Annual Meeting of the Bulgarian Dental Association will be held in Plovdiv and will be jointly organized with the Quintessence Publishing Group. For more information contact: Dr. J. Mihailov, Director, the Bulgarian Dental Association, 1000 Sofia, 34-A Bulgaria Ave., Bulgaria.

October 16-17: Southern Ontario Surgical Orthodontic Study Group Meeting in Windsor, Ontario. For details, contact: Dr. Jeff Berger, (519) 259-2632 or fax (519) 258-2637.

October 22 - 24: 36th CFDE/CDA Teaching Conference will be held at the University of Toronto. This year's topic - Pediatric dentistry. For more information, contact: Gay MacQuarrie at the Canadian Dental Association, (613) 523-1770 or 1-800-267-6354

October 17-22: American Dental Association Convention will be held in Orlando, Florida. For information, contact: the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois, 60611, or call: (312) 440-2500.

October 28-31: 1st International Congress of the Turkish Society of Restorative Dentistry will be held in Antalya, Turkey at the Antalya Sheraton Voyager. For more information write: Dr. Fatma Koray, Faculty of Dentistry, University of Istanbul, 34390 Capa, Istanbul, Turkey.

October 30-31: Craniofacial Development and Anomalies Conference will be held at the University of Alberta. For information contact: Dr. G.H. Sperber, Department of Oral Biology, University of Alberta, Edmonton, Alberta, T6G 2N8 or fax: (403) 492-1624.

November/Novembre 1992

November 18-20: Swedental Annual Dental Fair in Stockholm, Sweden. For details, write: Ms. May-Britt Carlsson, Press Officer, 125 80 Stockholm, S-125 80 Stockholm, Sweden.

November 28-December 3: Greater New York Dental Meeting being held at the Jacob K. Javits Convention Center, New York Marriott Marquis in New York City. For more details, contact: Greater New York Dental Meeting, New York Marriott Marquis, 1535 Broadway - 3rd Floor, New York, NY, 10036-4017 or call: (212) 398-6922.

Continuing Dental Education

Dalhousie University
Halifax, Nova Scotia

November 7, 1992
Techniques for Successful Crown and Bridge Restorations
Presenters: Drs. Gorman Doyle, Jack Gerrow, and Dan Macintosh
(Audience Limited to 16)

November 7, 1992
Dental Hygiene in the 90s
Presenters: Multiple Presenters

November 21, 1992
Practical Approach to the Diagnosis and Management of T.M.J. Dysfunction
Presenter: Dr. Lawrence L. Jackman

November 28, 1992
Removable Partial Dentures - Part II
Presenter: Dr. Robert Brygider
(Limited Attendance)

January 16, 1993
Infection Control
Presenters: Ms. Heather Bowers, R.D.A. and Ms. Cathy MacLean, B.N., R.N.
(Limited Attendance)

For more information, contact:
Alumni Affairs and Continuing Education
Faculty of Dentistry,
Dalhousie University
Halifax, Nova Scotia B3H 3J5

University of Alberta
75th Anniversary

November 7, 1992
Changing Times: Issues in Preventive Modalities

November 14, 1992
Basic Rescuer CPR and Airway Management

November 20-21, 1992
Clinical Photography: A Hands-On Approach

November 27-28, 1992
Prosthodontic Aspects of Osseointegration a Course for the General Dental Practitioner

For further information, contact:
Dr. Steve Patterson or
Ms. Debbie Grant
Faculty of Dentistry,
University of Alberta
(403) 492-5023 or (403) 492-8240

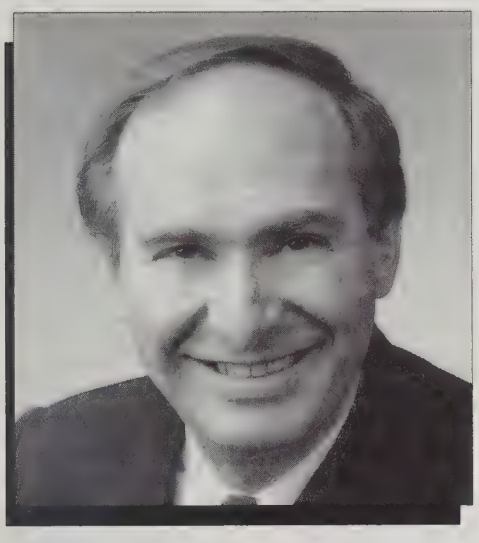
University of Toronto

October 17, 1992
Pharmacology symposium

November 12, 13, 1992
The Impact of Osseointegration on the Treatment of the Prosthodontic Patient

For more information contact:
Jennifer White
Continuing Dental Education
Faculty of Dentistry
(416) 979-4503

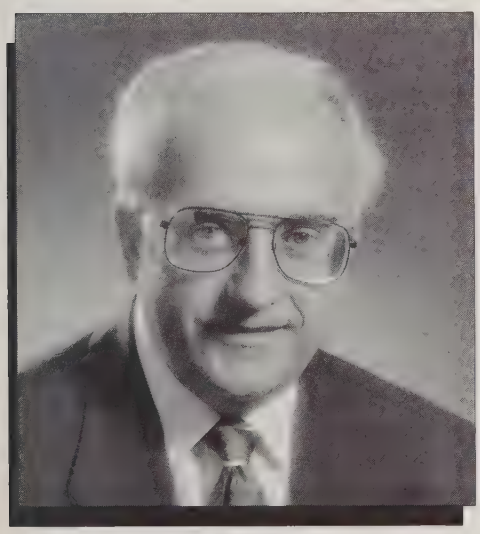
CDA Board Installs New Executive



Dr. Bernard Dolansky

CDA has a new executive. Dr. Bernard Dolansky, an Ontario dentist, was installed as CDA president August 30 during the associations's annual meeting and convention in Calgary, Alberta. He will be joined on the 1992-93 executive by Dr. Raymond Wenn, as president-elect, and Dr. Bryun Sigfstead, as vice-president.

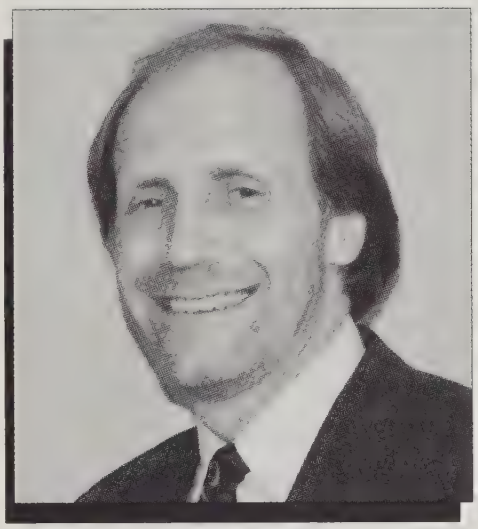
Dr. Dolansky, a former president of the Ontario Dental Association who earned his dental degree from the University of Montreal, has participated in organized dentistry at the national level for several years (see "Meet the Dolanskys," p. 711). ■



Dr. Ray Wenn

Dr. Wenn, who served on CDA's management committee as vice-president during the 1991-92 term, received his dental degree from Dalhousie University in 1975. He subsequently established a general practice in Charlottetown, P.E.I., and is a former president of the P.E.I. Dental Association. Dr. Wenn has represented his province on the CDA board of governors since 1986.

Today, Dr. Wenn is associated in practice with his daughter, Dr. Cheryl Wenn, who graduated from Dalhousie in 1991. He is looking forward to the day when his second daughter, Kimberley, who is in second-year dentistry at Dalhousie, joins the Wenn "dental empire" in 1995.



Dr. Bryun Sigfstead

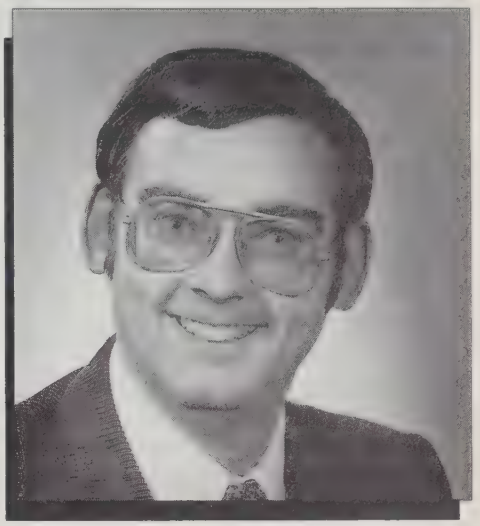
Dr. Sigfstead received his DDS from the University of Alberta in 1967 and his diploma in orthodontics in 1973. He conducts a private practice in orthodontics in Edmonton.

President of the Alberta Dental Association in 1984-85, Dr. Sigfstead has been a member of the CDA board of governors and executive council since 1987. As CDA vice-president, Dr. Sigfstead joins president Bernard Dolansky, past-president Les Allen, president-elect Ray Wenn and executive director Jardine Neilson on the association's management committee. ■

Dr. Robert Turcotte Appointed N.B. Registrar

Dr. Robert Turcotte, of Saint John, N.B., was recently appointed as the registrar of the New Brunswick Dental Society.

Dr. Turcotte established a general practice in Saint John shortly after his graduation from McGill University's dental faculty in 1972. He has been active in dental association affairs for almost 20 years, and was elected as a member of the board of the New Brunswick Dental Society in 1973. He served as president of the society in 1983-1984, and was his province's representative on the CDA board of governors from 1980 to 1986. He currently represents New Brunswick on the board of directors of Canadian Dental Service Plans Inc (CDSPI). ■



Dr. Robert Turcotte

Royal College names Successful Candidates

Nine new dentists have being admitted as fellows of the Royal College of Dentists of Canada.

Drs. G.A. Aiello, of London, Ontario; M.L. Fain, of Winnipeg, Manitoba; Eric Morin, of Quebec City; and A.D. Morrison of Glasgow, Scotland, were admitted to the college in the area of oral and maxillary surgery. They are joined by Drs. J.I.M. Allan, of Kelowna, Ontario, and S.K.T. Chiang of Vancouver in orthodontics; L.M.D. MacPherson of Winnipeg and H.C. Tennebaum of Toronto in dental sciences; and L.R. Yanover of St. Catharines, Ontario, in pediatric dentistry.

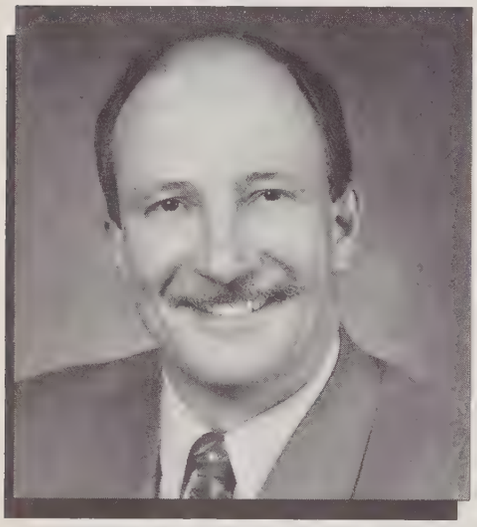
In addition, R.N. Bohay, of London, Ontario (oral radiology), and D.N. Tkach of Edmonton (orthodontics) were admitted to membership in the college.

The Royal College of Dentists of Canada was established by Parliament in 1965 to act as Canada's examining agency for dental specialists, clinicians and scientists. It offers examinations to

dentists who have successfully completed a program of postgraduate education, accredited by the Canadian or the American dental associations, in one of the nine specialties recognized in Canada.

The examinations are given at two levels: membership and fellowship. Membership examinations consist of a six-hour essay-type test, followed, for those who pass this component, by an additional one-hour oral (or clinical) examination. Dentists who successfully complete the membership examination, which is generally taken immediately after graduation, become members of the college and are eligible to proceed to the fellowship examination. It consists of a three-hour oral examination, which usually requires the presentation of treated cases. Fellowship in the Royal College of Dentists of Canada is recognized as being the highest measure of clinical competence for Canadian dental specialists. ■

Dr. J.W. Blair Named Alberta President



Dr. J.W. (Bill) Blair

Dr. J.W. (Bill) Blair was appointed president of the Alberta Dental Association July 1.

A 1969 graduate of the University of Alberta, Dr. Blair conducts a private practice in Calgary and has a keen interest in forensic dentistry. He became a diplomate of the American Board of Forensic Odontology in 1980 and a Fellow of the American Academy of Forensic Science in 1986.

Also serving on the Alberta executive for 1992-93 are, Drs. G.P. Greeves, Calgary, past-president; W.J. Hollingshead, Red Deer, president-elect; and W.J. Sharun, Edmonton, vice-president.

Dr. H.S. Katz Named Alpha Omega President

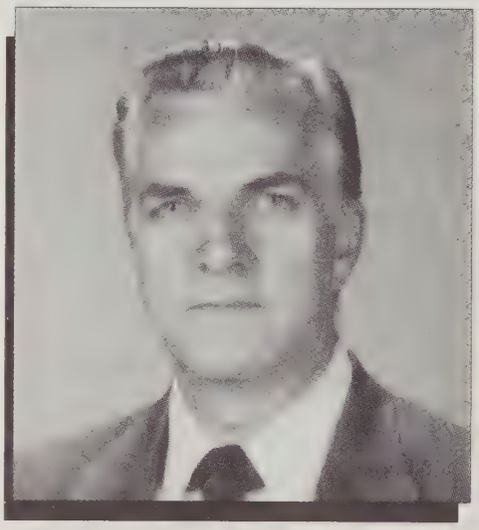
Dr. Howard S. Katz of Montreal was recently elected president of the Alpha Omega Mount Royal Dental Society.

A member of the full-time academic teaching staff at McGill University, Dr. Katz is the director of dental clinics, chairman of the department of clinical dentistry and director of the division of dental pharmacology and therapeutics. He is also director of the McGill University/Montreal General Hospital summer dental clinic for the Handicapped and the Adolescent.

Alpha Omega is an international dental association that actively promotes dentistry, both locally and abroad, through continuing education and scientific seminars. It is also involved in a number of philanthropic activities.

In addition to Dr. Katz, the society's 1992-93 executive will include Drs. Morrie London, Steve Cymet, Warren Retter, Joseph Szwimer, Jack Turkewicz, Jacob Tink, and Emil Shiri. ■

Dr. Kenneth Bentley Elected Montreal Dental Club President



Dr. Kenneth Bentley

Dr. Kenneth C. Bentley, the director of the department of oral and maxillary surgery at McGill University, was elected as president of the Montreal Dental Club in June.

The Montreal Dental Club, one of Canada's oldest study groups, was incorporated in 1897 at the initiative of nine Montreal dentists. Its objective was to establish a forum for discussion, for sharing and for learning, while seeking solutions to the dental problems of the time.

Since its founding, the ranks of the club have swelled from nine members to 250, but its original goal is as meaningful today as it was nearly a century ago.

Dr. Bentley was named as the club's president during its annual meeting last June. He will be joined on the 1992-93 executive board by: president-elect, Dr. Olga Skica; vice-president, Dr. Gerard Weinlander; past-president, Dr. Petra Dando; treasurer, Dr. Frank A. Kay; secretary, Dr. Hoa Nguyen; and historian-archivist, Dr. Leo Moran. ■

Dr. Robert Fortier Appointed Academy of Periodontology President

Dr. Robert Fortier

Dr. Robert Fortier of Sherbrooke, Quebec, has been appointed president of the Canadian Academy of Periodontology.

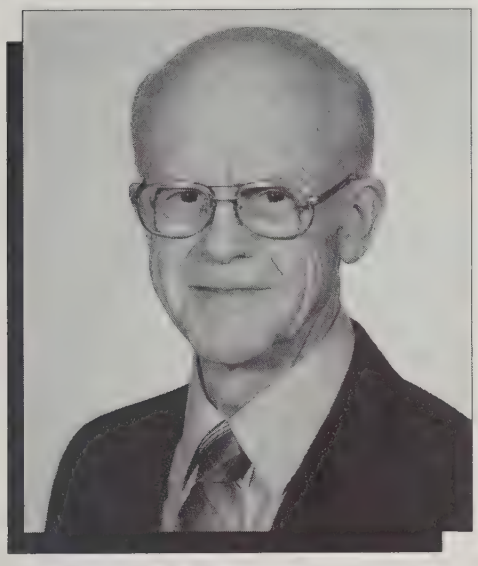
A candidate in the Canadian Forces' Dental Officer Training Program, Dr. Fortier graduated from the University of Montreal in 1966. He served in the military until 1982, with postings in both Canada and Europe. During that time he was selected for postgraduate training in periodontics at the University of Toronto, and obtained his certificate in 1974.

On leaving the forces, Dr. Fortier established a specialty practice in Sherbrooke.

In addition to Dr. Fortier, the academy's 1992-93 executive will include: Dr. Peter Munns, Vancouver, president-elect; Dr. Marvin Budd, Toronto, secre-

tary; Dr. Michel Couture, Montreal, treasurer; and Dr. David Singer, Winnipeg, member at large. ■

Dr. Gerald Stibbs Retires



Dr. Gerald Stibbs

Dr. Gerald Stibbs, 82, a world-renowned lecturer and clinician, has retired after 61 years in restorative dentistry.

Born in Schreiber, Ontario, a small community on the north shore of Lake Superior in 1910, Dr. Stibbs moved to Lethbridge, Alberta, with his family in 1911 (his father worked as a stores keeper for CPR), and then to Nelson, British Columbia, in 1917. He entered North Pacific College of Oregon (now the University of Oregon) in 1926 as a member of the first five-year class.

Following his graduation in 1931, Dr. Stibbs returned to British Columbia. Shortly afterwards, under the auspices of the provincial government, he established a mobile dental practice in the Kootenays and began conducting special dental clinics for children.

In 1936, a year after he gave his first clinic in restorative dentistry, Dr. Stibbs moved to Vancouver. A recognized authority in gold foil, he was extremely active in both dental association affairs and gold foil study club activities until 1948, when he was appointed as professor of operative dentistry at the University of Washington's newly established school of dentistry. He is still involved with the Vancouver Ferrier Gold Foil Study Club (Vancouver), the Walter K. Sproule Study Club (New Westminster), and the George Ellsperman Study Club (Seattle).

In 1950, Dr. Stibbs developed a graduate program in operative and restorative dentistry at the University of Washington, and the school's first master of science degree in restorative dentistry was awarded in 1952. Twenty-four years later, in 1976, the university appointed Dr. Stibbs as professor emeritus and guest lecturer in restorative dentistry. ■

"Open Wide," a program that offered Manitoba residents free dental care for a day

U.W.O. Graduates 1,000th Dentist

Dr. Avtar Kauldhar has earned the 1,000th doctor of dental surgery degree awarded by the University of Western Ontario.

The first class of dental students was enroled at Western in September 1966, with the first graduates receiving their degrees four years later. Dr. Kauldher's was awarded during the university's June 5, 1992, convocation ceremony. Sharing the proud moment is the current dean of the dental faculty, Dr. Ralph Brooke (centre), and the founding dean, Dr. Wesley J. Dunn (left). ■

Manitoba's "Open Wide" Program a Dental Health Month Success

"Open Wide," a program that offered Manitoba residents free dental care for a day, may have been the most popular item on the agenda during the province's 1992 Dental Health Month campaign last April.

A combined project of the Manitoba Dental Association (MDA) and the University of Manitoba's faculty of dentistry, Open Wide offered the public a variety of consultive and restorative dental treatment on a free of charge, first-come, first-served basis.

The program was a hit from the word go. More than 200 people arrived at the dental school early – well before the doors opened in the morning – and waited for treatment in a line that extended around the block. But a virtual volunteer army of private practitioners and faculty members ensured that every patient was attended to quickly, and by day's end 456 had received treatment.

Open Wide was a success from a dental awareness perspective as well. The program, in addition to providing a very positive first-hand dental experience for hundreds of grateful patients, received full television coverage throughout the Manitoba viewing area.

Open Wide's success was brought about through weeks of meetings between the MDA chairpersons responsible for the program, Drs. Bill Kettner and Ernest Cholakis, and its faculty organizers, Dean Dr. Ron Jordan, Dr. Blaine Cleghorn and Dr. Olva Odlum. ■

Sixth U.S. Dental School Closes

Both students and faculty were left in a state of shock June 8 when Loyola University announced that its school of dentistry will close next year.

The Chicago-based university's decision will reduce the number of dental schools in the United States to 54. Since 1986, five other schools have closed their doors: Oral Roberts in Oklahoma; Emory in Georgia; Georgetown in Washington, D.C.; Fairleigh Dickinson in New Jersey: and Washington University in St. Louis.

Each of these schools was privately operated, and in each case university officials blamed escalating costs and decreasing enrolment for the closure. Tuition at Loyola for the 1991-92 school year was about $15,600, almost four times more than the fees at Illinois's two public dental schools, which charged less than $4,000 for in-state students last year.

The Loyola closure will affect 140 second- and third-year dental students and 15 first-year graduate students, as well as 60 full-time and 195 part-time faculty members. All dental students, other than in-coming seniors or post-graduate students who will complete their programs by next June, were advised to transfer to other dental schools for the fall term. ■

CDSPI Sells DOMS Division

Canadian Dental Service Plans Inc. (CDSPI) has sold its computer-based Dental Office Management System (DOMS) to Zadall Systems Group, Inc.

According to a CDSPI press release, the sale virtually ensures that the next phase of DOMS development will be successful. It is also believed that the sale will not affect current DOMS users, as Zadall has retained CDSPI's DOMS support staff to provide system owners with the "high level of service to which they have become accustomed."

CDSPI will act in an advisory capacity to Zadall for the next five years or more to ensure that DOMS continues to meet the needs of the dental profession. Based in Vancouver, British Columbia, Zadall already has about 2,200 computer installations in pharmacy and dental settings throughout Canada and the United States. ■

Dental Service to Undeveloped Countries: Can You Help?

Dr. Stuart Robertson of Ottawa, Ontario, recently spent some time working in a dental clinic in Haiti developing countries. "Volunteer dentistry in developing countries is always challenging, difficult and unpredictable, but the rewards are truly beyond words."

The CDA Library, in response to widespread interest on the part of Canadian dentists, hopes to develop a list of the dental opportunities currently available in Third World countries. Once complete, the list will be maintained and kept up-to-date as a ready reference guide for dentists interested in providing dental services to the people of these countries, either on a short-term or a long-term basis.

Journal readers are therefore asked to pass on the names of any agencies, officials, church organizations or other groups that organize opportunities for dentists to serve overseas. If you have information about existing or planned Third World dental opportunities, please write the CDA Library, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6, or call 1-800-267-6354. ■

Honoring a Lifetime in Dentistry

A retired Ontario dentist has donated $10,000 to the Canadian Fund for Dental Education (CFDE) to establish an endowment fund for dental education.

"Dentistry has been good to me all my life," said the donor, who wishes to remain anonymous. His gift is intended to give something back to dentistry in return for everything it gave to him during his career.

The new endowment fund will be used by CFDE to support programs in general dentistry and/or to assist dental students in financial difficulty. This generous gift follows the precedent set in 1991 by Dr. Kenneth W. Lawless, a Kingston, Ontario, oral surgeon, who donated $7,500 to CFDE to recognize his referring dental colleagues.

Dentists who are interested in contributing to CFDE, or who want more information about the fund, should write CFDE at 105 - 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6, or call: 613-731-0493. ■

CFDE Continues 30 Year Tradition

The Canadian Fund for Dental Education (CFDE) has offered financial support to dental education and research in Canada for 30 years.

During its recent annual meeting, CFDE's board awarded 13 teacher training fellowships totalling $35,000 for the 1992-93 academic year.

This year's fellowship recipients are:

Fellowship Renewals

Dr. Albert Jeffrey Coil ($2,800): A PhD student and clinical lecturer at the University of British Columbia, Dr. Coil is undertaking speciality training in endodontics and a MSD degree in endodontics research at the University of Washington in Seattle.

Ms. Charla Joyce Lautar, John Abbott College ($2,800): Ms. Lautar is working on a PhD in education, combining dental hygiene, computers and education, at the University of Calgary.

Dr. Debora C. Matthews, University of Alberta ($2,100): Dr. Matthews is currently a periodontal resident and masters student at the University of Toronto, and is continuing her studies toward a combined diploma in periodontics and master of science degree.

Dr. Robert Stephen Roda, Dalhousie University ($2,100): Dr. Roda is working on a masters degree in endodontics at Baylor College of Dentistry in Dallas, Texas.

Dr. Anne Charbonneau ($1,400): A student at the University of Montreal, Dr. Charbonneau is pursuing a masters degree in community health through the university's department of social and preventative medicine.

Ms. Carolyn Kay ($1,400): A graduate of the George Brown College dental hygienist program, Ms. Kay is working toward a masters of education degree at the Ontario Institute for Studies in Education.

Dr. Laura Eva Tam ($1,400): Dr. Tam is an assistant professor in the department of restorative dentistry at the University of Toronto, and is pursuing studies related to "A fracture mechanics approach to adhesive interfaces," and an M.Sc. degree at that university. ■

New Fellowships

Dr. Ernest W. N. Lam ($5,000): Dr. Lam, of the University of British Columbia, is working on a certificate in oral and maxillofacial radiology at the University of Iowa.

Dr. Daniel Fortin ($5,000): Dr. Fortin, of the University of Montreal, is enrolled in the master of science program in operative dentistry at the University of Iowa.

Drs. Americo Fernandes, Gajanan V. Kulkarni and Dr. Marc Raper declined the 1992-93 CFDE fellowships awarded to them this year because of other commitments or major awards they had already received.

The Warner-Lambert Canada Fellowship for an existing dental teacher was awarded this year to Dr. Christopher Clark of the University of British Columbia. The $2,500 award will support his ongoing project: "Problem-based Learning in Dental Education."

The CFDE fellowship for dental hygiene teachers, also sponsored by Warner-Lambert Canada Inc., was awarded to Janet Erikson and Jackie Smorang of Foothills Hospital in Calgary. They are working on a joint project to establish and monitor a preventive oral care program suitable for a large local extended-care facility. As this award was not granted in 1991, due to the lack of a suitable candidate, they will each receive a fellowship of $2,500.

In addition, Michele Rosko of Port Moody, British Columbia, was awarded a $2,500 CFDE fellowship for dental assisting teachers, sponsored by Warner-Lambert Canada Inc. She is enroled in the dental radiology course offered by the Carolina Institute for Dental Radiology Education.

Finally, this year's Henry M. Thornton Fellowship Award of $1,000 for the most deserving new applicant, sponsored by Dentsply Canada Ltd., was shared equally by Dr. Ernest Lam and Dr. Gajanan V. Kulkarni.

The CFDE fellowship program was started in 1964 to help develop and maintain a pool of qualified teachers in Canadian dental and dental hygiene schools. Since then, CFDE has awarded 355 fellowships to teachers, amounting to a total financial contribution of $1,260,515. Recipients of CFDE fellowship awards usually take two years of postgraduate study including both education courses as well as courses in their respective specialties. On completion of their studies, recipients are committed to teach for a minimum of two years for each year of fellowship funding they received. ■

Correction

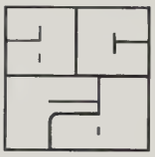
A "News Update" story that appeared in the August 1992 issue of the *Journal*, "CFDE Announces 1992-93 Grants and Awards," implied that each recipient of the Henry Thornton Award for the most meritous applicant received $1,000 and that 16 individuals had earned the award. In fact, the total award of $1,000 was shared equally by two individuals. The *Journal* regrets the error.

Advertisers' Index

A Dec 741
Ash Temple .....IFC
Aurum Ceramic 684
Bisco Dental 726
Butler ..... OBC
L.D. Caulk .....IBC
CDA Access 728
CDA DIS 714
CDA Membership 690
CDA Merchandise 736, 737
CDAnet 742
CDA RSP 746
CDSPI 710, 740
Colgate Palmolive 686
Dental Seminars 751
ESPE Premier Dental 718
Experdent 760
Goodman & Carr 704
Kodak 702
Noblepharma 755
Riker Canada ...692, 735
Syntex 724, 725, 733
Teledyne 717
Warner Lambert 701

A Year of Celebration

ACFD Celebrates Silver Jubilee



The Association of Canadian Faculties of Dentistry (ACFD) was born in March 1967, when representatives from Canada's dental faculties got together during a meeting of the American Association of Dental Schools in Washington, D.C. As a result of those talks, eight deans and six other representatives of the universities of Montreal, Toronto, Western Ontario, Manitoba, Saskatchewan, Alberta, British Columbia and Dalhousie University passed the following motion:

"That this assembly, the members of which officially represent the dental schools of Canada, does hereby agree and support the individual actions of the Council of Faculties of Dentistry that an Association of Canadian Schools be formed."

Two subsequent meetings were held during 1967, funded in part by a $1,000 grant from the Canadian Fund for Dental Education (CFDE), before ACFD was incorporated.

It is interesting to note that the issues discussed by the new association 25 years ago were not significantly different from the issues that concern dentistry today. Early ACFD minutes indicate that the association supported dental education research and dental research in general, the establishment of an official relationship with CDA's Council on Education, and discussions on the role of the National Dental Examining Board (NDEB).

ACFD's first annual meeting was held in October 1968 during the official opening of the University of Western Ontario's dental faculty in London, Ontario. The meeting was attended by delegates from the nine Canadian dental faculties, as well as dental librarians and the directors of dental hygiene schools. Annual membership dues of $1,000 per dental faculty were established.

The minutes of that first meeting mention the founding of the new faculty of dentistry at Laval University. They also refer to a further $4,000 contribution from CFDE, and to the formation of two standing committees, one for research and one for education.

During the 1970s, ACFD, as expected, went through a consolidation phase as it established itself within organized dentistry. The association also conducted its first national project during this period, when it commissioned a survey to identify the changes that occur in dental students during their education.

In 1981, with support from CFDE and CDA, ACFD held a conference on clinical evaluation methodology. As a result of the conference, Canadian dental schools became the North American leaders in this aspect of dental education.

ACFD's Summer Teaching Institute was launched in 1984, followed by the Management Institute. These two programs have being the association's flagship projects throughout the 1980s and into the '90's.

The Canadian Medical Association – 125 Years Old

Just 100 days after Confederation, on October 9, 1867, 167 medical doctors gathered at Laval University in Quebec City to found Canada's first-ever national society – the Canadian Medical Association (CMA).

A number of regional and provincial associations, representing sports, labor and charitable organizations, had been formed in British North America prior to Confederation, but none had extended their influence beyond the existing regional or territorial boundaries of the day.

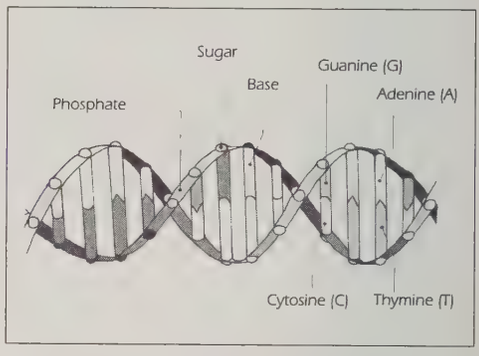
Sir Charles Tupper – First CMA President

CMA's first president was Dr. (later Sir) Charles Tupper. Born in Nova Scotia in 1821, Dr. Tupper received his medical training in Scotland. He returned to Canada in 1843, and established a medical practice in Amherst, Nova Scotia.

Throughout most of his life, Dr. Tupper combined a medical career with political pursuits. He was a decisive figure in Canadian political life, with a true capacity for administration, and served as the premier of Nova Scotia from 1864 to 1867. In fact, he was still the premier of the province when he was elected as the first president of CMA.

In 1867, Dr. Tupper was also elected to Canada's first House of Commons. Three years later, in 1870, he was appointed to the cabinet. But in 1896, as leader of his party, he would serve the shortest term of any of Canada's 24 prime ministers – a mere 69 days. (John Turner served the second shortest term – 80 days).

Nobel Prize for DNA Research, 1962



One nucleotide

Thirty years ago, in 1962, Francis Crick and James Dewey Watson received the Nobel prize in physiology for their pioneering research with deoxyribonucleic acid (DNA).

In 1951, Maurice Wilkins had obtained the first X-ray diffraction picture of the DNA molecule. Using this picture, Watson and Crick, in 1953, were able to construct the double-helix structure of DNA, which answered the question of how hereditary material duplicates itself.

Income Tax – A Not So Joyous Celebration

Income tax was originally conceived by Prime Minister Robert Borden's Conservative government as a temporary measure that would help to keep Canada solvent during the First World War.

But 75 years have passed since the Income War Tax Act received royal assent on September 20, 1917, and Canadians are still paying income tax.

In the 1990/91 fiscal year alone, the Receiver General of Canada collected $70 billion in income tax from Canadian citizens – some temporary tax! ■

WE'RE NOT SUGGESTING THAT CHEWING GUM SHOULD REPLACE BRUSHING AND FLOSSING. But Trident sugarless gum is serious about dental care. Serious enough to fund dental research and development, year after year. Serious enough to formulate Trident with 15% xylitol, the natural sweetener that decay-causing bacteria can't metabolize. And Trident's great taste makes it a welcome alternative to sugary snacks. So make a valuable addition to your patients' oral care program.

Recommend Trident with xylitol. The gum that dental professionals can take seriously.

Call **1-800-263-9060*** to order Trident for your patients. 180 packages of gum for $40.00, a 60% savings. Delivery in 2 weeks. *Call 9 am - 5 pm E.S.T.

NEW

Now see the future in just 5 minutes with

Evalusite™

PERIODONTAL
TEST

Accurately detects the presence or absence of periodontitis in conjunction with clinical parameters.

Because detecting specific organisms helps monitor periodontal treatment and helps determine the endpoint of periodontal therapy,* today there's **Evalusite.**

Evalusite Periodontal Test not only detects but also identifies antigens of the three bacteria most commonly associated with periodontitis: Aa *(Actinobacillus actinomycetemcomitans)*, Pi *(Prevotella intermedia)*, and Pg *(Porphyromonas gingivalis)*. With a simple color scale comparison, easy-to-read indications of specific antigen levels provide a more conclusive correlation with disease severity.

Evalusite Periodontal Test allows you to test two suspect areas in one device and get chairside results in only five minutes.

Evalusite Periodontal Test could mean a better future for your periodontal patients.

A more conclusive chairside indicator of periodontitis.

Evalusite™

PERIODONTAL
TEST

For further information call
1-800-GO KODAK, or in Toronto 766-8233.

*Genco RJ, Zambon JJ, Christersson LA. Use and interpretation of microbiological assay in periodontal disease. *Oral Microbiol Immunol* 1986; 1:73–79.

DENTAL PRODUCTS

Kodak

© Kodak Canada Inc. 1992. Kodak and Evalusite are trademarks.

Leadership: The Essential Ingredient for Practice Success

Despite the hard times being experienced by some dentists as a result of the current economic climate in Canada, it could be argued that the recession actually had a positive impact on the dental profession.

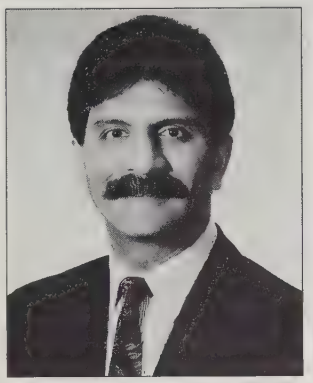
More than anything else, the recession jolted the profession into embracing the tenet that dentistry is a business. Although many dental practitioners had previously declined to accept this basic fact, in dentistry, as is the case in any other business, effective management is crucial for survival.

The difficulty for today's dentists, both the "rookies" and the "veterans," is coping with the seemingly immense managerial challenges that lurk beneath each and every dental practice. From the day they open their own office, dental professionals are thrust into the position of being the chief executive officer. It's not always a natural role. Dentists may have honed their clinical skills, allowing them to provide the best possible quality of dentistry to their patients, but business savvy may still be all-elusive. In effect, dentists are expected – despite having little or no business training – to lead their practices to success. And if they are unable to provide that all essential demonstration of solid leadership, their dental practice will never make the leap from lacklustre to lustre.

Pinpointing Leadership

We can all identify natural leaders when they see them, from Winston Churchill to Lee Iacocca. It's easy to assume that such icons of business or politics are blessed with special "gifts" that allow them to accomplish the incredible, and sometimes more. But the capacity for strong leadership lies within us all – the difference is that only some of us expend the energy to tap our full leadership potential.

Having a clear vision of where you want to get to, and a team that shares that mission, is essential for practice success. Ask yourself why you entered dentistry, where you are in your practice today and where you'd like to be tomorrow. What's your objective: do you want to be a highly-respected TMJ specialist, or a general dentist whose patient retention and new patient flow is the envy of your colleague down the street?



Imtiaz Manji B.Sc. President of ExperDent Consultants Inc.

Focusing on your goal, and being willing to act on it, will put you in the comfortable position of having taken the first step toward reaching that all-important objective. But having a clearly defined goal is not enough. A true leader acts on his vision. And he also impels those around him – his team – to turn that vision into a reality.

A dentist's ability to achieve peak performance, and transmit similar qualities to each member of his or her dental team, distinguishes the well-led practice from the merely "managed" practice. (The latter type of practice is often characterized by staff turnover, ill-defined, changing goals and, consequently, a confused, frustrated team.)

Developing (and mastering) Leadership Skills

Many dentists who embrace the ideals of leadership are compromised by their hopeful, but naive, assumption that the "quick fix" approach will work. This often catastrophic failing emerges in many forms, from attending short-duration practice management seminars to buying an office computer.

The intent of these dentists, namely to ignite their team's fire, is admirable. But even though attending seminars and installing a computer often prove to be beneficial, they are not synonymous with leadership. Leadership requires much more than "plugging" singular, ad hoc activities or machines into the dental office. It demands a commitment to:

*Lifelong Learning

Instead of taking a one-time course on how to improve your bottom line, commit to making continuing education an on-going process. The returns on this commitment – be they technical betterment, personal growth or the development of marketing ideas – will be considerable. Furthermore, your long-term pursuit of excellence will earn respect from your team, your patients and your colleagues. It will also lead to measurable dividends, including increased staff and patient retention, and provide an on-going source of referrals. Effective leaders can't help but draw "packs."

*Empowerment

If you're looking for a sure-fire technique to become a better leader, try giving some of your power away. The nature of organizational management and leadership has evolved, in recent years, from an extremely hierarchical to a more open, participative style. This evolution has incited innovation, initiative and commitment. But this change can only be accomplished by loosening the reins of control, and giving your team the responsibility and the authority to act. The most important asset of any organization is people. If you nurture and guide a team, you release its staggering potential. But if you dictate and alienate, you put out its fire.

Certainly, it's imperative that every facet of a dental practice is well-managed, but the dentist does not have to, and in fact shouldn't, be the person responsible for doing the day-to-day routine managing. He or she certainly delegates authority, and monitors what's going on – from the state of the appointment book to the status of the accounts receivable – but does not assume responsibility for filling the daily schedule or chasing patients to pay their bills. The dentist merely steers the way, relying on the staff to manage themselves, the office and the systems.

The results achieved through empowering people are profound. Staff become energized and feel rewarded by their performance. They take ownership in both the practice goal and in the plan for "how to get there." And the fact that they are held accountable for their actions – which really do matter – inspires them. The chairside dental assistant who has "bought" into the practice vision realizes that her job entails much more than suctioning saliva or taking an impression. She is able to see how her job contributes to the big picture – to changing people's lives for the better by offering them good oral health. Realizing that her behavior has a direct impact on the success of the practice, she is impelled to be her very best, to participate in the pursuit of excellence.

*Effective Communication

Many dentists feel a sense of horror when they realize that they've been parachuted into a leadership role with virtually no management or leadership training. This feeling is often most chilling when it comes to communications. After all, if you want to be a true leader, you have to know how to convey and receive thoughts, ideas and feelings. For dentists, who have been trained in a "language" that few laymen understand, this is no small challenge.

The most important (yet least developed) communication technique is listening. An inability to listen leads to wasted time, ineffective management, derailed plans and frustrated decisions. In comparison, effective listening stimulates the team to heightened creativity, creative problem solving and streamlined systems. And staff morale is not the only direct benefit that results from the dentist taking the time to listen. Patients pick up on this much revered skill, realizing that you understand their needs, wants, fears and concerns. You will then be in a win-win position, satisfying their needs by providing the appropriate treatment, while boosting productivity by dispensing quality dentistry.

* A Results-Oriented Philosophy

As mentioned, having a vision of what you want to achieve and having a team that genuinely shares this objective is a pre-requisite for effective leadership. But moving others to act is only part of the equation. A leader must stipulate, with precision, the results he or she is after. This means spelling out your expectations in terms of production levels, new patient flow, scheduling, office policies, etc. Often, dynamic practices will incorporate these goals into incentive and profit-sharing schemes as a means of motivating the team (See: Manji, I. Incentives and Profit-Sharing Revisited (Practice Management & Success). *J Canad Dent Assoc* 57(11):839-842, 1991).

Leading the Way

If you want to emulate the qualities of Churchill or Iacocca, take heart. Whether you're running a country, rescuing Chrysler or managing a rural dental practice, the principles of effective leadership are the same. You can be a "mover and shaker" by learning to lead.

While you're developing and honing these leadership skills, you'll be amazed by the parallel success and satisfaction you reap from your work. What you'll also realize is that the leadership journey never ends. The satisfaction is in the journey itself, in the ongoing process of cultivating, polishing and mastering the lifelong quest for leadership. ■

The cure for complex legislation

When you require prompt, reliable advice you can trust, you need a lawyer who believes in the importance of your concerns. Tracey Tremayne-Lloyd is committed to that belief, and to providing you with the level of service you need.

Since being called to the Ontario Bar in 1984, Tracey has concentrated her practice on health law and civil litigation. As the partner in charge of our Health Services Group, she provides assistance with changes in legislation, complaints and discipline, employment problems, malpractice and liability issues, infectious disease, the confidentiality of health care information and other health law-related matters. As a member of your team, Tracey can ensure you receive the service you deserve.

Tracey Tremayne-Lloyd
(416) 597-4088

GC
GOODMAN AND CARR
BARRISTERS AND SOLICITORS

Book Reviews

Oral & Maxillofacial Radiology: Radiologic Pathologic Correlations

by S.A. Miles, G.E. Kaugars, M. Van Dis, and J.G.L. Lovas

1991, W.B. Saunders Co., Philadelphia
330 pages

This book was written in response to a perceived need on the part of dental students for more illustrations. Instead of providing one "classic" example of each lesion, the authors have attempted to provide a variety of angles and looks. They have also included more detail on the pathology and aspects of treatment than is usual in a radiology text. This link with disease will be welcomed by students and teachers alike, and the book is sure to find a place in the market. However, the final result is too nearly an oral pathology text in many ways, especially in the case of diseases which have little radiological evidence.

Most works of this nature have controversial aspects, and this book is no exception. For example, periapical cysts are separated from other periapical radiolucent lesions, which tends to exclude them from a differential diagnosis, and it is implied that granulomas and abscesses can be differentiated on radiological evidence. Garré is still eponymously accredited with periostitis, which he never described, and sequestra are said to be more common in acute than chronic osteomyelitis. The relatively less radiolucent appearance of keratocysts is not due to their keratin content. Osteoporosis circumscripta is a destruction of the inner table of the cranium, not prominent diploe. The isotope uptake in **Fig. 9-9** is unlikely to be related to the maxillary sinuses, and I doubt that the antral mucosal thickening in **Fig. 9-11** is caused by periodontal disease. Histiocytosis X does indeed often resorb roots. The loss of cortex around the mandibular angle is a normal variant, not related to osteoporosis. There is almost no mention of traumatic injuries of either teeth or jaws, and the scant reference to trauma of the maxillary sinus is not well done. In addition, I think students will be confused about the differentiation of antral pseudocysts and retention cysts.

The list goes on. Recent diagnostic imaging methods have been adequately covered in the text, but some inaccuracies have been perpetuated. For example, **Fig. 4-1T** is inferior not superior to Q, **Fig. 4-1S** certainly does not look postoperative, and V is not a bone window setting. Most of the illustrations are of good quality, however, and the book is generally well produced, with a useful index and good references. I found relatively few typographical errors. (Page 37: "occurrence" = "recurrence," 191: "tram-like" = "tram-line," 243: "hyperparathyroisim" = "hyperparathyroidism," 249: "condylosis" = "condylysis," 263: "processing" = "precessing," 307: "causally" = "casually," and, on page 279, "sclerodactyly" does not mean "spider fingers.")

Reviewed by:
Colin Price
Professor and chairman, division of oral radiology
Faculty of Dentistry, University of British Columbia

Head and Neck Imaging, 2nd edition.

Edited by Peter M. Som and R. Thomas Bergeron

1991, Mosby Year Book, inc., St. Louis, MO.
1,152 pages, 2,495 illustrations.

When the first edition of this book was published in 1984, its intent was to present the recent advances in computed tomography (CT) as they related to head and neck imaging. This more recent edition reflects the continued developments in CT, and the well established role of magnetic resonance imaging (MRI). However, I had anticipated that it would include a little more in the way of ultrasonography and radionuclide imaging.

This book is intended to be palatable to those with a rather peripheral knowledge of the imaging field, and at the same time provide the necessary depth to experts. It has achieved this difficult combination exceptionally well.

Twenty-nine individuals, all acknowledged experts in their fields, contributed to the book. But despite the number of authors involved, there is a continuity of style and content throughout the text, which is a great tribute to its editors.

Basic knowledge of the principles of imaging, in conventional radiography as well as CT and MRI, is assumed and necessary for assimilation of the book's content. But a superb background of relevant anatomical and pathological information is provided, which reduces the need to seek material from other sources. Conventional radiography is used to present the basics of normal morphology and altered appearances, and then CT and MR images are provided for comparison with these illustrations and with each other. The best example of this approach is in the extensive chapter on the sinonasal cavity. This section provides very comprehensive information in a very enjoyable and assimilable form.

Oral radiologists and oral and maxillofacial surgeons will derive the most information from the book. In addition to the sinonasal cavity chapter, the sections on salivary glands, pharynx, parapharyngeal space, neck, and skull base, are particularly helpful.

However, the chapter on the temporomandibular joint, written by Katzberg and Westesson, who together have advanced imaging in this field more than all other researchers put together, disappointed me. I had anticipated a wider coverage of TMJ disorders. That two of the images are printed upside down will confuse the less experienced and annoy the better informed. Similarly, I found the chapter on the mandible disappointing. Not one periapical radiograph is shown throughout the book, panoramic radiography is inadequately covered, and views are termed "panorex" when not a single Panorex is actually illustrated. These aspects serve to identify the gap which still exists between oral and medical radiology.

In general, this is a delightful book with a wealth of information, excellent illustrations, and very extensive and current references.

Reviewed by:
Colin Price
Professor and chairman, division of oral radiology
Faculty of Dentistry, University of British Columbia

TMJ and Craniofacial Pain: Diagnosis and Management

by James R. Fricton, Richard J. Kroening and Kate M. Hathaway

1988, Ishiyaku EuroAmerica, Inc., St. Louis, Tokyo
183 pages, B & W illustrations

This first-edition textbook provides clinicians with various principles and techniques for patient evaluation and the management of TMJ and craniofacial pain, "using knowledge derived from multiple disciplines, documented in the scientific literature and tested with clinical experience."

Collectively, the authors have expertise in the areas of medicine, dentistry and psychology. An underlying theme related to the value of using a team approach to diagnose and treat the multifactorial nature of TMJ and craniofacial pain is evident throughout the book. The authors have approached their topic in a scientific fashion, based on a comprehensive review of the literature in combination with extensive personal research. This text also has many figures and tables, and should be appealing to the clinician who likes to use flow charts as a tool for decision making.

The epidemiology of the etiologic factors, as well as the habits, risk factors, type and success of treatment modalities involved in TMJ and craniofacial pain, are discussed first. To best describe the complexity of the topic, the pathophysiology of pain and the variables involved in the pain experience, such as perception, psychosocial and behavioral reaction to pain, are described.

A sophisticated conceptual model, which is used for identifying contributing factors and diagnosing patients with TMJ and craniofacial pain, is outlined. The chapter on physical examination has been written in a step-by-step fashion and may appeal to the practitioner who would like a cookbook approach to a standardized exam.

A comprehensive discussion on myofascial pain, fibromyalgia, muscle spasm, myositis and muscle pain secondary to connective tissue disorders is provided in the chapter on muscular disorders. The clinical characteristics, pathophysiology and management of these disorders are also discussed in detail, although the authors point out that their pathogenesis has not been well described due to the multiple contributing factors that make these entities difficult both to recognize and treat. In any event, the authors have gathered together statements and conclusions from many different studies, and this information has been used to suggest a scientific foundation on which a treatment plan can be based.

An interesting chapter on joint disorder, including derangements and degeneration, is written in the same fashion. A good description of the histology in a diseased TM joint is included. Because they can be "clinically effective with minimal side effects," the full-arch stabilization splint, the mandibular repositioning splint, and the anterior bite plane are reviewed. Due to insufficient research, the scientific basis for using splint therapy is not discussed, however. The management techniques described include physiotherapy, pharmacotherapy and surgical regimes.

The text incorporates informative chapters on neuralgia disorders, causalgic disorders, vascular disorders (migraine and cluster headache) and psychiatric and somatoform pain disorders. Behavioral and psychosocial evaluation and management is addressed, followed by the closing chapter, which discusses the value of the interdisciplinary management of TMJ and craniofacial pain.

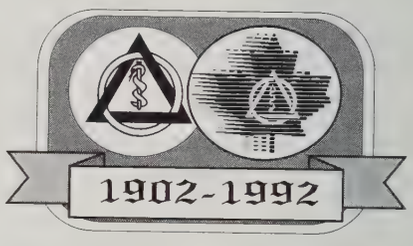
Although I was impressed with the authors thoroughness, I was somewhat disappointed with their hesitation to discuss a number of controversial issues that have a direct effect on TMJ and craniofacial pain. These issues – which could have included the TMJ pain and dysfunction that may result from inappropriate treatment of subcondylar fractures, abnormal TMJ reaction forces arising from dentofacial deformities, and diseased synovium – were probably excluded due to a lack of adequate studies. However, if issues such as these were mentioned more frequently, then adequate documentation may begin to appear in the literature.

Because of its extensive review of the literature and the detailed nature of its contents, this text should be a valuable reference for those clinicians involved in treating TMJ and craniofacial pain. Still, the book is similar to others in offering a myriad of treatment techniques and, as usual, the actual etiology of TMJ and craniofacial pain remains elusive.

Reviewed by:
Dr. R.H.B. Goodday
Assistant professor, oral and maxillofacial surgery
Faculty of Dentistry, Dalhousie University

CDA MUSEUM

Donations Requested



Memorabilia from CDA's 90-year history is now on display in antique cases in the library of the Canadian Dental Association headquarters in Ottawa.

As originally planned, the displays are changed on a regular basis to suitably depict different eras of our rich dental history. Donations of museum-quality dental artifacts are still being accepted and are very much appreciated. Particularly requested are larger items such as chairs, units, cabinets and X-ray machines, plus historical photos and records.

Also of interest to dental historians are the items highlighted in the column titled, What's It?, which appears monthly in the CDA Journal. This column elicits the help of readers in identifying some of the antique items presently on location in the museum.

For further information, contact Dr. Ralph Crawford at the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario, K1G 3Y6. (613) 523-1770 or call toll-free, 1-800-267-6354.

CDA Convention • Toronto 1993
April 28 – May 1

CONVENTION UPDATE

The Huron Indians called it Toronto, the "place of meeting" —obviously, they held their conventions there too!

The 1993 CDA Convention will be hosted by the Ontario Dental Association and held in **Toronto** — a city that is internationally recognized as the "world's newest great city". Canada's largest metropolis offers over 26,000 first-class hotel rooms and suites, a million and a half square feet of meeting and convention space, 4000 restaurants serving up every imaginable cuisine, 130 theatre companies performing on 60 stages and over three million residents who are anxious to show off their hometown! And CDA Conventions looks forward to welcoming you, your family *and* your staff to this fascinating metropolis this spring! Book your time off now: **April 28 – May 1, 1993.**

The 1993 CDA Annual Convention promises to be an exciting affair and is expected to attract record numbers of both dental professionals and dental industry representatives. The experience and expertise of the meeting planning staff of the host province will be combined with that of the CDA Convention staff to bring you what has the potential to become the largest dental convention ever held in Canada! Register early and plan to make history with us next spring in Toronto.

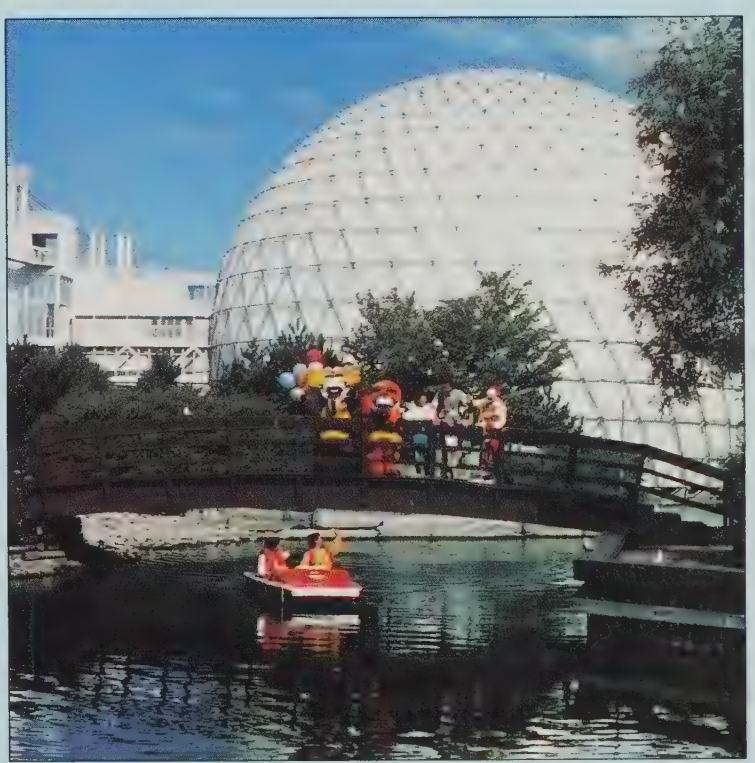
The 1993 Convention Committee is an experienced team of individuals and they are all committed to developing an event that you will not soon forget! As their leader, I am honoured and privileged to work with such a dynamic and competent group of people. The team members are as follows:

Dr. Dick Ito	**Chairperson, Scientific Program**
Dr. David Brown	**Chairperson, Exhibits**
Dr. Barry Chapnick	**Representative, Toronto Academy of Dentistry**
Dr. Ed Grodecki	**Representative, West Toronto Dental Society**
Dr. Rob Sutherland	**Representative, East Toronto Dental Society**
Dr. Eva Saxell	**Representative, Toronto Central Dental Society**
Dr. Phil Novack	**Representative, North Toronto Dental Society**
Dr. Ted Harper	**Chairperson, Table Clinics**
Dr. Rebecca Yacobi	**Chairperson, Social Program**
Mrs. Pat Miller Sampson	**ODN & AA Representative**
Mr. Jeffrey Miller	**CDAA/ODN & AA Representative**
Ms. Lorraine Boomhour	**CDHA/ODHA Representative**
Ms. Eva Young	**DIAC Representative**
Mr. Ken Croney	**DIAC Representative**
Mrs. Babs Harper	**Spouses' & Childrens' Program**
Ms. Debbie Fisher	**Spouses' & Childrens' Program**
Dr. Alan Vinegar	**Fun Run**
Ms. Janice Edgar	**CDA Convention Coordinator**
Ms. Christine Leadman	**CDA Convention Coordinator**
Ms. Diana Thorneycroft	**ODA Meetings Coordinator**
Ms. Beverly Davies	**ODA Meetings Support**

This team has been, and will continue, devoting its energy to organizing a dental convention that offers something for every member of the dental team and the family too. Your attendance will be our reward.

Toronto 1993 – Couldn't you use a little? Hope to see you there!

Michel Jahjah, D.D.S.
General Chairman
CDA Conventions



Ontario Place, Toronto
(Photo compliments of MTCVA)

Toronto 1993 • April 28 – May 1

Toronto — The City That Works

One prominent American author, in describing his arrival in Toronto, said, "As we approach Toronto everything looks doubly beautiful, especially the glimpses of blue Ontario's waters, sun-lit, yet with a slight haze ..." The author is Walt Whitman, and that observation was made in 1880. It's now more than 100 years later, and Toronto has grown more than 100-fold. Of course, these days that same spectacular glimpse of Toronto is taken from thousands of feet in the air as you descend to Pearson International Airport. Pearson International is now one of the world's busiest airports, with over 1100 flights arriving daily; and, with the addition of a third terminal in late 1990, it became signifcantly more efficient.

The 1993 CDA Annual Convention will be housed in the Metro Toronto Convention Centre and will offer participants a wide range of continuing education programs as well as an exhibit hall filled with dental industry representatives eager to assist you in making your dental practice the best it can be. But of course, the committee members also know that all work and no play makes for a very dull visit so an exciting social program is also being developed. However, while you're in Toronto you may wish to plan your own day-excursions before and after the convention.

Toronto's SkyDome – home of the Toronto Blue Jays.
(Photo compliments of MTCVA)

CN Tower, Toronto.
(Photo compliments of MTCVA)

Your challenge will be to pare down the restaurant list from 4,000 to three or four and then to select from the city's 1,001 entertainment options! How about a night at SkyDome watching the Jays. Or, chill out at Maple Leaf Gardens and watch the Leafs take to the ice (if they're lucky). Roy Thomson Hall's got the Toronto Symphony, and O'Keefe Centre is home to both the National Ballet of Canada and the Canadian Opera Company. Both venues round out their schedules with an endless list of world-class headliners. Of course, there's always something happening on the sixty stages — ranging from the intimate to the extravagant.

Toronto 1993 • April 28 – May 1

From the thrilling rides at Canada's Wonderland, to the wonders of the Ontario Science Centre, the excitement never wanes. And for the more adventuresome, Toronto offers an African lion safari or a trip to Jupiter! And, Toronto is your gateway to an endless assortment of Ontario adventures: you could head south for a peek at Niagara Falls then venture over to Niagara-on-the-Lake, home to the internationally-acclaimed Shaw Festival. Or travel north and west to Stratford and brush up on your Shakespeare. Or discover the quaint delights of Kleinburg, home to the McMichael Canadian Art Collection which includes works by Tom Thomson and Canada's renowned Group of Seven.

From dawn to dusk, Toronto will be yours to discover next spring. It's got world-class style and home-style charm ... it's got it all for you ... including the 1993 CDA Annual Convention.

Toronto Skyline.
(Photo compliments of MTCVA)

CLINICIANS WANTED!

Present a MINI CLINIC or a TABLE CLINIC

at the 1993 Canadian Dental Association Annual Convention hosted by the Ontario Dental Association

April 28th – May 1st, 1993

A **MINI CLINIC** is a one-hour presentation (special requests for longer presentations may be submitted) that may be scheduled as follows:

Thursday, April 29th	8:30 - 11 a.m.	1:30 - 4 p.m.
Friday, April 30th	8:30 - 11 a.m.	1:30 - 4 p.m.
Saturday, May 1st	8:30 - 11 a.m.	1:30 - 4 p.m.

A **TABLE CLINIC** is a fifteen-minute presentation that is repeated during a two to three hour period. These may be scheduled as follows:

Thursday, April 29th	9 - 11 a.m.	1:30 - 4 p.m.
Friday, April 30th	9 - 11 a.m.	1:30 - 4 p.m.
Saturday, May 1st	10 a.m. - noon	

Please indicate your preference of day and time (i.e. morning or afternoon) when submitting your proposal.

NOTE: Dentists and dental students wishing to present clinics are required to be ODA or CDA members in good standing.

Deadline for Submissions:
October 31st, 1992.
Applicants will be advised regarding acceptance of their submissions by January 15th, 1993.

Contact: Ted Harper, c/o CDA Conventions, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6
for an application form. (Please specify whether you are interested in presenting a mini or table clinic (or both!).

A LEGEND

One night, in ancient times, three horsemen were riding across a desert. As they crossed the dry bed of a river, out of the darkness a voice called, "Halt!" and they obeyed. The voice then told them to dismount, pick up a handful of pebbles, put the pebbles in their pockets and remount. The voice then said, "You have done as I commanded. Tomorrow at sun-up you will be both glad and sorry." Mystified, the horsemen rode on. When the sun rose they reached into their pockets and found that a miracle had happened. The pebbles had been transformed into diamonds, rubies and other precious stones.

They remembered the warning and they were indeed both glad and sorry. Glad they had taken some, sorry they had not taken more. And this is the story of insurance.

Author unknown

The need for insurance is no legend.

CDIP's Basic Life Insurance can ensure your family's financially healthy future

Will those you care for be *glad* that you cared enough to ensure their future well-being? Or will they be *sorry* that you did not take full advantage of all the financial security options that were made available to you?

Their future depends on you. CDIP's Basic Life Insurance ensures that your family will enjoy a financially healthy future... *the one we know you want for them.*

Basic Life Insurance coverage has two purposes. One, to protect your dependents from the loss of financial support in the event of your death. Two, to meet your outstanding obligations such as debts, expenses and taxes.

Take a few minutes to do a quick calculation — adding in the amount of your mortgage indebtedness, ever-increasing property taxes, the basic cost-of-living, the GST, the cost of a college education for your children, your current business debts, financial security for your spouse and so on.

Will your present coverage be enough to cover all the debts and personal responsibilities you leave behind?

If you have any concerns, why not apply now for an increase in your personal Basic Life Insurance coverage. Premiums are very competitive for both smokers and non-smokers. A medical examination may be required.

Also available: Dependents' Life Insurance. In the event of the death of your spouse, it provides funds for the immediate and ongoing care of your children, meets your spouse's outstanding obligations, and covers funeral expenses in the event of the death of your spouse or children.

Should you have any questions about Basic Life Insurance or Dependents Life Insurance coverage, or to get an application form, call CDSPI and ask to speak to one of our Personal Service Representatives.

For your peace of mind, apply today. *We are here to help you.*

Available only to the dentists of Canada from your partners in personal and practice protection...

CDIP

... owned and operated by the dentists of Canada through the CDA and provincial associations.

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

1-800-561-9401
(Extention 236) *Service in English for British Columbia, Alberta, Saskatchewan, Manitoba, Northwest Territories and Yukon*
(Extention 238) *Service in English (Ontario)*
(Extention 236) *Service in English (Quebec & Atlantic Canada)*

1-416-296-9401 *Metro Toronto*

1-416-296-8920 *Fax*

Note to dentists in Quebec: In order to apply for and/or increase in your coverage in these plans and programs you must be a member of the Canadian Dental Association.

MEET THE DOLANSKYS

Dr. Bernard Dolansky of Ottawa was installed as the president of CDA August 30, culminating the association's celebration of "90 Years of Leadership."

CDA was founded in 1902. When he accepted the association's chain of office – during a special ceremony held in Calgary in conjunction with CDA's 1992 convention – Dr. Dolansky became the latest member in a long line of dedicated dentists who have taken on the number-one leadership role in Canadian dentistry.

No dentist, and Dr. Dolansky was no exception, ascends to the CDA president's chair until he or she has made a significant contribution to dentistry at the local, provincial and national levels. But few dentists are able to commit years of time and energy to association affairs without strong support both at home and in the office.

In light of this, the Journal has added a new twist to its traditional interview with the incoming president. This year, we talked to both the president, Dr. Dolansky, and to his wife, Donna. The Dolanskys are really a team – at home, in the dental office, and even when it comes to association activities. This is their story.

Journal: *Dr. Dolansky let's start with you. Born and raised in Montreal, you graduated from the University of Montreal's dental faculty. What inspired you to attend a francophone dental college, are you fully bilingual?*

Dr. Dolansky: The second part of the question is the easiest to answer. I am what I call fully functional bilingual. About 40 per cent of my practice is conducted in French, and I am pretty fluent in French as far as being able to carry on a conversation. My written French is pretty rusty.

As to the first part of the question, I guess my attending the University of Montreal happened in the same way that many events transpire – partly by accident, partly by default. In 1966 I was living in Montreal. I applied for dentistry at both the University of Montreal and McGill, and was accepted to both schools. But as I already had an undergraduate degree from McGill, I saw my acceptance at the University of Montreal as an opportunity to become fully bilingual.

Journal: *You had no problems because your mother tongue was English?*

Dr. Dolansky: Actually, it was very interesting. I suppose it was a measure of how Canada has evolved since then. When I went to the University of Montreal it was a completely francophone school, of course, but most of the text books were in English. Dentistry was a North American art and science, and in those days the university gave students the option of writing their exams in English. It was, I believe, a reciprocal right in all universities in Quebec. I think that we, as anglophones, had an edge on our French colleagues – the grammar in French is more difficult than it is in English.

Journal: *Mrs. Dolansky, let's switch over to you for a moment. When did you appear on the scene? Were you and Bernie childhood sweethearts or did you meet when he was in dental college? How did your relationship all come together?*

The Dolansky family (l to r): Shawna, Bernie, Donna, Eric, Gillian

Mrs. Dolansky: I graduated from McGill in 1968, and had plans to go to the State University of New York at Stonybrook for graduate work. Bernie and I started going out formally about three days before I left.

Journal: *Did you complete your studies in New York?*

Mrs. Dolansky: Yes, in June of 1969 I received my masters degree in biochemistry and in August Bernie and I were married.

Journal: *So, Dr. Dolansky, you were still in dental school at this time?*

Dr. Dolansky: That's right. My last year in dental school was spent as a married student. Ours was a large class – 86 students – and about a third of the class were married.

Journal: *Donna, when you married Bernie, and after he established his practice, did you ever think that he would become so involved in dentistry "outside of the office"? Were there any early signs to indicate that he was so interested in serving his community and his profession?*

Mrs. Dolansky: At the outset, he wasn't involved in any association activities. I am sure that he wanted to establish himself in practice before he reached further afield.

Dr. Dolansky: Maybe I can answer this. Again, it seems that I became involved more by accident than by deliberate planning. As a student, I wasn't into politics – I was never a member of the class executive or student council.

However, shortly after moving to Ottawa I received a call from one of the leaders of organized dentistry asking if I would like to serve on the local dental society executive. It wasn't long before I found myself appointed to a new committee

dealing with continuing education. Maybe it was because I was more vocal or complained more than the others, but before I knew it I was appointed chairman – at the very first meeting as a matter of fact. The rest is history – I guess I got a taste for it.

Journal: By 1986, you were president of the Ontario Dental Association. People don't become president of their association until they have completed years of committee and executive work. The question is, what drives you in this direction – why are you involved?

Dr. Dolansky: The simple answer is, I enjoy it. I also think it's mildly addictive. And there is a natural circle that forms when you enjoy something. You do more of it and you become better at it – you become better at it and you enjoy doing more of it.

Another thing that I have discovered, over the years, is that involvement in dental association affairs creates the satisfaction of having some control over my destiny as a professional. I actually have some say in the decisions that affect how we dentists practise.

There is a natural circle that forms when you enjoy something. You do more of it and you become better at it – you become better at it and you enjoy doing more of it.

Journal: Coming back to you Donna – could you tell us a bit about your family. You have three beautiful children who, judging by their ages, must have been born during the years that Bernie was involved with the Ontario Dental Association. How did you manage during those years when the children were small, and Bernie was on the road?

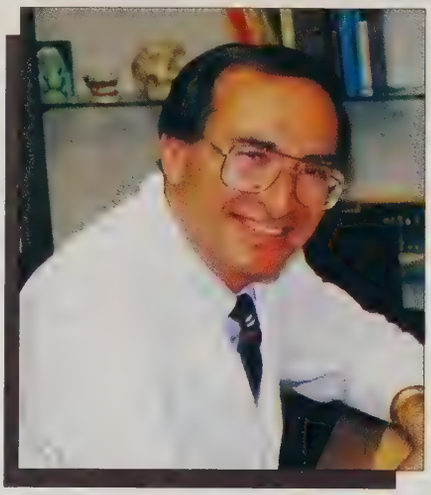
Tell us a little about your family, how old they are, and how you cope with a very active husband, three children and working at the dental office.

We enjoy going to the conventions as a family.

Mrs. Dolansky: We have three children. The eldest is Shawna. She will be 20 in October, and is going into second year arts at Queens University. Eric is 17 and in Grade 12. Gillian is 13 and still has another year to go before high school.

It was about the time that Gillian was born, in 1979, that Bernie became more involved with ODA committee work, and I found myself alone with the children on many occasions.

At first I really hated it. I didn't like the amount of time that Bernie spent out of town at all. It seemed there were never any accidents involving anybody when he was home, but the minute he was at a meeting in Toronto somebody got hurt or hit by something or other.



Involvement in dental association affairs creates the satisfaction of having some control over my destiny as a professional.

After awhile, we adjusted and got used to it, and no one seems to complain very much today. In fact, we enjoy going to the conventions as a family. I think our children are fairly well known among our ODA and CDA friends.

Dr. Dolansky: Donna is right. Make the children part of it. We have taken them to every CDA convention since Halifax – that's the last seven conventions. And before that we went to every ODA convention. Donna attends as many meetings with me as is feasible and practical. To us, the secret has been to participate in association affairs as much as possible as a family.

Journal: That's great – it sounds as if the Dolansky family has everything under control.

Alright, Dr. Dolansky, let's turn to some of the current problems facing CDA – and you – in the next year. Let's talk first about one of your pet projects, CDAnet. No CDA endeavor in recent memory has caused as much discussion, resulted in as many meetings, or cost more money. Where are we at?

Dr. Dolansky: Those are a lot of questions rolled up into one. I don't think there has been any topic or any project that has engendered as much needless controversy as this one. For some reason it got away from all of us. I think all sides lost a little rationality on this.

It started off as a very simple proposition. New electronic technology appeared that could replace the paper claim form. We have always controlled the claim process in the dental office, so why not control the electronic one? CDA became involved in an effort to do just that. It all seemed very simple.

For some reason, which quite frankly to this day I still don't understand, a lot of people became very upset and read a threat into the process. I still can't tell you where that threat is – I can't see it. The controversy, and the fact that so many dentists became upset, lengthened the time it took to do the project by about 100 per cent.

ODA and other provincial associations, as well as individual dentists who felt threatened, had to have their fears answered and put to rest, so we engaged consultants and lawyers to double and triple and quadruple check everything. That cost money, and the bill for CDAnet ended up being somewhere between double and triple what it should have been.

I don't think anyone can be blamed for this. Certainly, you cannot have a controversy without two parties, and in this case we quite often had four or five parties at loggerheads with each

other. The very complexity of it, I think, was underestimated and I would have to take some of the blame for that.

CDA accepted an enormous responsibility when it purposely undertook to coordinate the CDAnet contracts. Each of the players were looking out for their own interests – the major corporations that own the networks, the provincial dental associations, and 15 or 20 of the largest insurance companies in the country. And each of the players came with their own consultants and lawyers. It became a massive task.

Surprisingly, most of the work ended up being done by a group of dentists in a committee. We tried to minimize the involvement of the paid professionals to as small extent as was possible, and practical, but even committee work is expensive in terms of time and travel.

Journal: When do you foresee this debt being written off? When will the Canadian Dental Association start to recoup their money?

Dr. Dolansky: The cash has already started to flow, and the system is growing by leaps and bounds. At this point, it is growing geometrically. Claims volume literally doubled and tripled in the first quarter of this year. We have now started to see CDAnet's first real dollars. I would like to see about 10 per cent of the debt paid off in this calendar year, and I would like to see that double and triple over the next three, with the debt being completely paid off after four years.

I think CDAnet is something that should have been done, that had to be done, and was done well.

Journal: So you certainly have no regrets becoming involved in this process, or having CDA involved in EDI?

Dr. Dolansky: The only regret I have is the one I mentioned previously – the fact that it caused so much needless controversy and divisiveness. Other than that, I think it is something that should have been done, that had to be done, and was done well.

We need only look south of the border to see what could have happened. In United States, EDI is catching on well, but American dentists, apart from not being able to control their data, are paying $1 to $1.50 a claim. In Canada, claims are free and organized dentistry has complete control.

Journal: The cost of EDI leads us into another topic which was heatedly discussed at the interim board of governors meeting – the budget. In 1991, CDA incurred a deficit in excess of $370,000. How did this happen?

Dr. Dolansky: Well, part of it was the unexpected costs involved with EDI, part of it was the legal costs related to the dispute between the Quebec Dental Surgeons Association and CDA, and part of it was the needed renovations that were done to the headquarters's building – before we knew that we were going to have these extra legal costs. All these things seemed to come together at the same time and ended up in one budget. That, I think, is part of it.

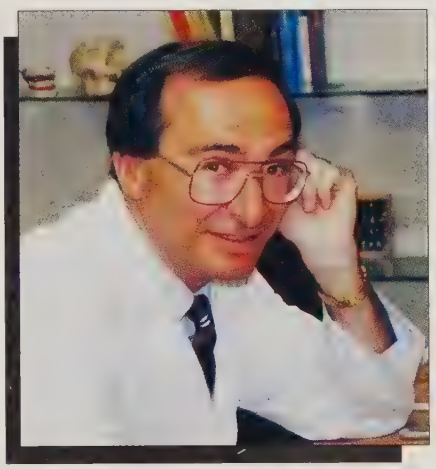
The other part of it is that, as we entered the 1990s, the dental profession faced two relatively new phenomenons. The first is that we have dentists today who, until now, had never experienced a recession. They were unaware of how a recession affects dentists and association membership – they weren't in practice in the early 1980s.

The other phenomenon I've noticed in the past half dozen years is a real change in the attitude of new graduates – I would say from 1985-1986 on. They do not seem to have the affinity and sense of belonging to the profession that previous graduates had, at least not in the same numbers.

Membership in CDA has remained flat, in terms of numbers, in the voluntary provinces. In effect, our membership has declined, if you look at it as a percentage of the total dentists in the voluntary provinces – Ontario and Quebec. It is unfortunate that CDA is expected to be all things to all people, and to do all the tasks necessary to make dentistry the greatest profession in Canada, but doesn't have the support of half of the profession in the voluntary provinces. CDA's initiatives benefit these people, and they aren't paying their fair share. I think that caught up to us in the 1991 budget and the problem is still with us.

CDA is expected to be all things to all people, and to do all the tasks necessary to make dentistry the greatest profession in Canada, but doesn't have the support of half of the profession in the voluntary provinces.

Journal: What about the falling membership in the voluntary provinces themselves – isn't provincial association support falling in Ontario and Quebec? I understand that Ontario had a downturn in membership this year, particularly with new graduates. Is this downward slide going to continue? How do we attract and retain new graduates?



I can't think of when CDA has been a more communications-orientated organization or when we dealt with issues better.

Dr. Dolansky: I think this has to be the number-one priority for the Canadian Dental Association. As I mentioned earlier, I think we have a generation gap here, and we have to find out why the graduates of the last few years feel that they are not part of the dental family. Why is it okay to fend for oneself and not take part in the advantages and strength inherent in acting as a group?

I know that it is partly economic – it is much more difficult to establish a practice and make a good living in dentistry – and this situation has certainly become worse in the last few years. But this trend started in the mid 1980s, in the middle of the greatest and longest economic boom we have seen. So I don't think it is entirely economic. I think it is partly attitudinal.

I guess I am hedging on your question a little bit, but I

The Dawn of a New Era in Patient Education

Did You Miss It?

Patient Education For The Nineties

October 1991 marked the dawn of a new era in patient education. The signal event? The launch of CDA's Dental Information System.

Every dentist in Canada received a brochure that introduced the system: what it is, how it works, and how it can work for you.

Hundreds have already contacted CDA for more information or to place their initial order. Here's your opportunity.

The Dental Information System is patient education for the Nineties. It's what dentists told us they needed. What patients told us they wanted. It is dental information redefined: the way it looks, the way it's organized, the way it's read, the way it works.

And it's available now.

Call CDA Toll-Free Today

You can order individual booklets, the whole series, or the custom designed display rack. CDA members save 25% on everything.

HOW WHAT THE DENTAL INFORMATION SYSTEM WHY WHEN

The Dental Information System: clear, comprehensive, useful and friendly

•8 booklets, 12 pages each (5" X 8") •rigorously reviewed by dental experts •wide range of topics •easy access indexing system •boxes, charts and photography that make information lively •custom designed plexiglass rack (24" X 24" square)

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

Call: 1-800-267-6354 (Western Canada, Newfoundland, and Labrador)
1-800-267-6364 (Eastern Canada)

Colgate™

The Dental Information System has been made possible through the generous assistance of Colgate Palmolive.

don't know the complete answer. I do know that I have been involved with membership issue since I joined CDA's executive council four years ago, and I can't think of when CDA has been a more communications-orientated organization or when we dealt with issues better.

On the issues that dentists deal with every day in their practices – HIV, hepatitis B, the whole area of infection control, mercury, new dental materials, hazard wastes in the dental office, dental awareness – CDA has been doing a superb job. Yet, there is a significant number of people who have the choice of joining or not joining CDA, and a fairly high percentage choose not to join.

And you're right, the slide in membership is happening in the Ontario Dental Association as well, and it is the same group, the younger graduates who are choosing not to join.

I know that I am going to make membership a priority this year. I believe we are going to have do all we can to reflect the new dental population in our leadership. I don't think the younger dentists, the women in dentistry, the visible minorities, are adequately represented in dental leadership positions. We have to work with our provincial corporate members, the source of our leadership, to try to reverse this trend.

Journal: *With the 1993 CDA dues set at $410, is there a ceiling to what dentists will pay? And what about the non-dues revenue of the Canadian Dental Association, will it increase? The American Dental Association earns as much as 40 per cent of their income from non-dues dollars. Do you see a change in this mix of revenue in the Canadian scene?*

Dr. Dolansky: Yes I do. Presently, CDA's non-dues revenue is approximately 30 per cent, and it has been our goal to make it 40 per cent for the last three years. I think that when CDAnet income starts coming in we will see a difference, here.

The new series of dental information pamphlets has been an excellent seller, and very well received, and this has boosted our revenues as well. I would like see 40 per cent as a goal, but I don't think it can be achieved this year. I can certainly assure you that every department and committee at CDA has, as part of their mandate, a responsibility to generate non-dues revenue.

I don't think the younger dentists, the women in dentistry, the visible minorities, are adequately represented in dental leadership positions.

You asked about the $410 we currently pay for CDA membership. There is a limit to what dentists will pay. First, let me say that the increase in 1992 was only four per cent over 1991, and I feel that this is a very responsible and modest increase considering the pay back.

As far as a limit goes, let me answer a question with a question. Is there a limit to what dentists expect CDA and other dental associations to do? If there is a limit on expectations, then there certainly can be a limit on fees. But as long as we are expected to deliver all the services that we do, and be on top of all the issues that can hurt or help dentistry, then dentists have to be willing to pay for that service.

Journal: *Good answer. Donna, let's give your husband a rest from all the questions on money. You are actively involved in Bernie's dental practice. Can you tell us about how and why you became involved?*

Is there a limit to what dentists expect CDA and other dental associations to do? If there is a limit on expectations, then there certainly can be a limit on fees.

Mrs. Dolansky: I became involved the moment Bernie started in practice. Our eldest daughter, Shawna, was born when Bernie was in graduate school in Chicago. About the time he was finishing his thesis, Shawna and I returned to Ottawa and I supervised the construction of his new office. I then started going into the office a day or two a week to do the bookkeeping. It gave me a bit of a break from routine household duties.

Once the children were all at school, I began to put in more time in the practice. When we brought in a computer system, I was the person who initiated the changes. Last March, a fourth dentist joined the practice and I started working full time whenever all four were there together. I am the first one to go when one of them takes time off – which is fine because it gives me a bit of time on my own.

Journal: *What is it like being the boss's wife? Is it difficult to be Dr. Dolansky's spouse when you are working with six or seven other people in the office? What advice do you have for other dentists wives who want to work in a dental office?*

Mrs. Dolansky: It isn't always easy, but I think I get along quite well with all the other staff members. I'm always aware that I have to be just another employee in the office.

Journal: *Obviously you must enjoy it. Okay, Dr. Dolansky, back to you. What about 1992? No deficit?*

Dr. Dolansky: I think it is unacceptable to run at a deficit other than in extraordinary circumstances, such as those that occurred in 1991. I don't think that it is something any association can get into the habit of doing.

In this recessionary period, it is part of our plans for the coming year to rethink CDA's philosophy of being all things to all people, and providing every service that we provided in the past. I think that at this point, CDA, like other organizations, has to rationalize and concentrate on the three or four things they must do and do well, and drop other projects that are peripheral to the mission of the association.

Journal: *Dr. Dolansky, let's talk a bit about dental education. We know CDA has been vitally involved with the "busyness" problem, and instrumental in reducing enrolment in our Canadian dental schools. We have been informed that Loyola University in Chicago is closing its dental faculty. This will be the sixth dental school to close in United States in recent years. What is on the horizon for Canadian schools?*

Dr. Dolansky: Well there are some laws that cannot be ignored, and one of them is the law of supply and demand. When the supply of dentists exceeds the numbers of patients,

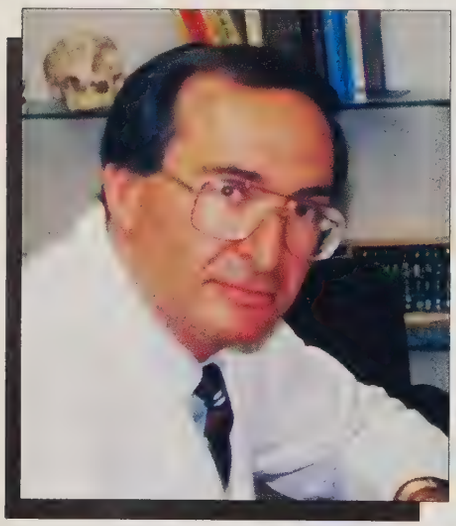
relative to the type of treatment required, then inevitably there is strain on the whole process.

I think what is happening in the United States is a tendency by students not to rush into dental schools when they do not see a good future for themselves when they walk out with their hard-earned degrees. There are several factors here that are unique to the United States. Even though we have our own problems of "busyness" in Canada, I don't believe that their dentists are as busy as ours. Part of this is caused by a situation I referred to when we were talking about CDAnet – the dental profession in the United States does not have the same control over its destiny that we do. I don't think dentistry is as desirable a profession in the U.S. as it is in Canada.

Journal: *This leads to another topic. What about Canadians in American dental schools? Has this not created a problem where graduates of U.S. schools have come into Canada, got licensed in Ontario, and bypassed the National Dental Examining Board? Does this spell the end of a national certificate in Canada?*

Dr. Dolansky: I certainly hope not. Actually, I have more than hope behind this particular answer. I think that the licensing body in Ontario was responding to what they felt was a situation where they had no other choice – because of political pressures – but to admit these students with American credentials.

I think this is a perfect example of why our profession needs a good, strong national voice. The Canadian Dental Association took a leading role in seeking a solution to the American graduates problem. It brought all the concerned parties together – the faculties, the Ontario licensing body and the National Dental Examining Board – and with goodwill and a willingness to work toward a common goal, we developed a solution that I am sure will reestablish a national standard.



When the supply of dentists exceeds the numbers of patients, relative to the type of treatment required, then inevitably there is strain on the whole process.

Journal: *Here is another much debated issue – I'm sure that it's one of your favorites – CDSPI. We know that CDSPI operates under an arms-length arrangement with CDA, but most dentists associate CDA with CDSPI. Do you see any major changes in the structure of CDSPI – changes in the availability of insurance for the dentist, by the dentist, at competitive rates?*

Dr. Dolansky: Let's take this a point at a time. I would disagree somewhat with your first question in that I don't think that it is a completely arms-length arrangement between CDA and CDSPI, any more than you can have arms-length relationship between the owner and operator of any company.

CDA and the other corporate bodies are, after all, the owners of CDSPI. In that sense, it is not an arms-length relationship. Actually, we are shareholders in a company/management type of corporation. Certainly, in the last two years that arrangement has been a very close one, with constant consultation between CDSPI management and CDA management. Yes, it is separate in the sense that we have two separate administrations, but there is an increasing evolutionary phase toward greater cooperation.

As for insurance for the dentist, by the dentist, at competitive rates, I think we do very well indeed. Particularly when we consider the changing demographics of dentistry and the risk factors that exist for dentists as an aging group. I know that every individual has to look at their own coverage and decide what is best for them, but there is no other company or group offering insurance to dentists that looks out for the interest of dentists and looks for the specific needs of dentists in Canada better than CDSPI. Things such as the office package, the coverage for HIV infection, and disability coverage, are things that only dentists would supply for other dentists.

The Canadian Dental Association took a leading role in seeking a solution to the American graduates problem.

Journal: *Mrs. Dolansky, given the type and tone of the questions we are posing to your husband, how do you and Bernie handle the stress and pressure inherent in high-level dental association involvement?*

Mrs. Dolansky: The secret is to accentuate the positive things that happen from this involvement, and reduce the emphasis on the negative as much as possible. Separation due to a dental meeting is an obvious negative aspect. If, however, you can travel to a meeting or conference as a family, then a negative can be turned into a positive.

I remember the first time I went to an ODA convention with Bernie. I felt it was another world. I soon found, as I went to more and more meetings, that I ran into the same people again and again, and all of a sudden these people became friends. We are close enough now that although we are stretched across the country, we keep track of each others' lives and look forward to the next dental convention.

Journal: *Would you want any of your children to be dentists?*

Mrs. Dolansky: It depends on what they want. So far, none of them have expressed any interest, but they can be whatever they want – just as long they are happy at their chosen vocation.

Journal: *Dr. Dolansky, briefly, what are your top priorities?*

Dr. Dolansky: We have already discussed one of my chief priorities – budget control. Fiscal responsibility and program rationalization are always important to any organization.

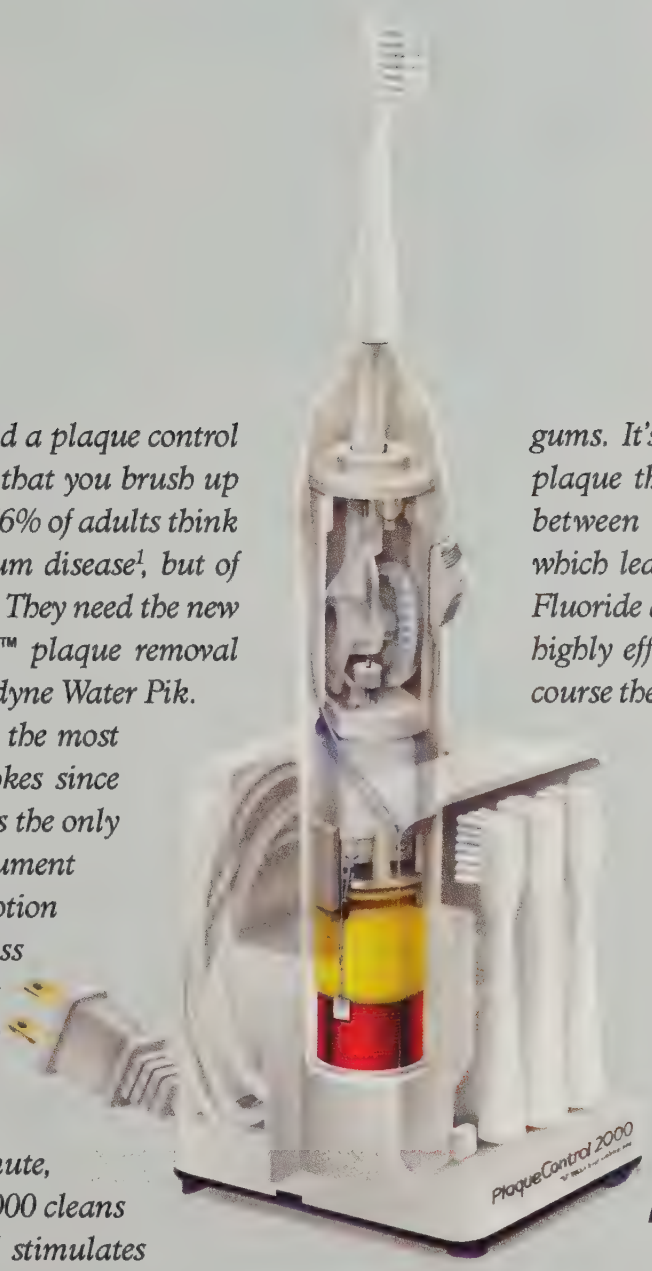
Along with what we have discussed about the need to boost our membership among new grads in Ontario and Quebec, another priority for me will be to continue to build a solid team of leaders to work for CDA, and to pass on a healthy organization to my successors. I think that this is something every president of CDA tries to do, but I would like to make it a personal priority.

The Journal extends to the Dolanskys – Canadian dentistry's "first family" – its sincere best wishes for the coming year.■

The most acclaimed brush strokes since Van Gogh.

Before you recommend a plaque control program, we suggest that you brush up on a couple of facts: 76% of adults think they won't develop gum disease[1], but of all adults, 75% will[2]. They need the new PlaqueControl 2000™ plaque removal instrument from Teledyne Water Pik.

We like to say it has the most acclaimed brush strokes since Van Gogh because it's the only plaque removal instrument with the brushing motion that simulates the Bass technique, which is most recommended by dental professionals. With 2000 elliptical brush strokes per minute, the PlaqueControl 2000 cleans teeth thoroughly and stimulates gums. It's clinically proven to remove the plaque that manual brushing can miss, between the teeth and at the gumline[3], which leads to improved gingival health. Fluoride dentifrices have been shown to be highly effective in reducing cavities, so of course the PlaqueControl 2000 is designed to use any dentifrice, without extra maintenance. Best of all, the PlaqueControl 2000 is made by Teledyne Water Pik, a trusted name in professional dental products. So next time you're recommending a plaque control program, consider our new PlaqueControl 2000. It's a work of art.



PlaqueControl 2000™
TELEDYNE WATER PIK

1. Source: Lou Harris Study, February 1991. 2. Source: American Dental Association. 3. Ciancio SG, Mather ML: Clinical comparison of two electric toothbrushes with different mechanical actions. *J Clin Periodontol*, in press

Introducing Dr. Free Goods...

FREE GOODS!

FREE! PROTEMP® II Standard Pkg. (Light) When You Purchase Giant Pkg. (Light or Yellow)

FREE! PROTEMP® II Intensive Colors When You Purchase A Double Pkg.

ESPE PROTEMP® II
TEMPORARIES THAT LAST

• Strong • Sets at body temperature • For use direct or indirect

70407 Standard (1) - Light
70401 Standard (1) - Yellow
70402 Double (2) - Yellow
70408 Double (2) - Light (A3)
70403 Giant (10) - Yellow
70409 Giant (10) - Light (A3)
70421 Intensive Colors (3) Assorted

FREE! RAMITEC® Standard Pkg. When You Purchase A Giant Pkg.

ESPE RAMITEC®
POLYETHER BITE REGISTRATION

• Proven accurate with or without a tray

58221 Standard 58222 Double (2) 58223 Giant Pkg (10)

FREE! PERMADYNE® GARANT Cartridge Sample When You Purchase Intro Pkg.

PERMADYNE® GARANT
POLYETHER ACCURACY IN A CARTRIDGE MIXING SYSTEM

70385 Intro Pkg. - Contains: 8 tubes tray material, 2 cartridges low viscosity Garant dispenser handle, mixing tubes, nozzles, spatula, mixing pad, 4 cartridge refills

FREE! ESPE KETAC®-FIL Asst. When You Purchase Any Two 50 Capsule Refills.

ESPE KETAC®-FIL APLICAP®
ESTHETIC, CAPSULATED GLASS IONOMER RESTORATIVE

• Sets fast • Lasting esthetics and protection
• Ideal for Class V cervical erosions, root caries, repair of crown margins, pedo restorations

70321 Intro - Contains 50 assorted Aplicaps, capsule activator and applier

Ketac-Fil 50 Capsule Refills

70326 Light
70328 Yellow
70333 Yellow Brown
70334 Grey Brown
70332 Brown
70327 Light Yellow
70335 Dark Grey
70330 Grey
70325 Assorted

FREE! ALKALINER® Intro When You Buy Two

ESPE ALKALINER®
CALCIUM HYDROXIDE

• Drip-free tubes eliminate waste • Easy to place • No pull back

70281 Intro - Contains base, catalyst & mixing pad

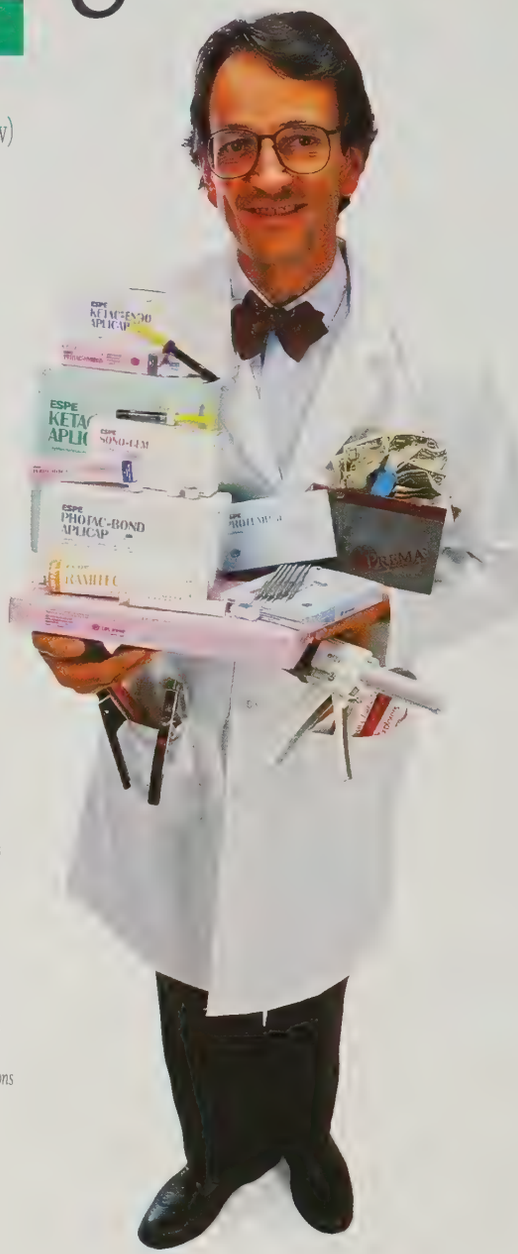
FREE! UNIVERSAL SHADE* When You Purchase Any Three Shades Of ESPE PERTAC®-HYBRID.

Pertac-Hybrid Refills 2.5 gm screw tubes

71250 Extra Light (A1)
71255 Light (A2)
71260 Universal (A3)
71265 Yellow-Brown (A3.5)
71270 Dark Grey Opaque
71275 Yellow (B3)
71280 Grey (C2)
71285 Dark Grey (C4)
71290 Yellow Opaque
71295 Dark Brown Opaque
71300 Brown Opaque
71305 Light Yellow (B2)
71310 Grey-Brown(D3)
71315 Dark Brown (A4)
71320 Dark Yellow Opaque

SAVE! ESPE PERTAC®-HYBRID Trial Pkg. Only $49.95 (103.00 Value) In Canada $58.75

71200 Trial Pkg. - Contains 2 Pertac-Hybrid screw tubes (A-3, B-3), Universal Bond, MiniTip Etching Gel



Free Goods To You, Doctor...

with appropriate purchase through your authorized dealer, **PLUS** exciting new products and rebates from Premier®/ESPE Premier®.

REBATES & NEW PRODUCTS!

$50.00 REBATE* And **5 FREE SHADES*** When You Purchase ESPE PERTAC®-HYBRID Intro.

71202 Intro Pkg. - Contains 7 screw tubes Pertac-Hybrid (XL, L, U, YB, LY, G, DBO) Pertac Universal Bond, MiniTip Etching Gel, accessories

ESPE PERTAC®-HYBRID
BRINGS ESTHETIC VITALITY TO YOUR RESTORATIONS

• All-purpose • No color shifting • Natural radiance • Strong

$10.00 REBATE* Per Package When You Purchase ESPE CAPMIX And Any Size ESPE KETAC®-ENDO. Multiple Packages Equal Multiple Rebates.

$35.00 REBATE* When You Purchase ESPE CAPMIX And ESPE PHOTAC-BOND Intro.

$30.00 REBATE* When You Purchase ESPE CAPMIX And ESPE PHOTAC-BOND Refill.

ESPE CAPMIX®
MIXING DEVICE FOR CAPSULATED MATERIALS

• Smooth surface permits easy disinfection • Easy-to-open capsule holder

70801 ESPE Capmix

$5.00 REBATE* When You Purchase One PREMIER® CAVITY FINDER 12 pack.

Select from SE #6, #17, #23 and DE #2 & #5

$25.00 REBATE* When You Purchase ESPE PHOTAC®-BOND APLICAP Intro.

$20.00 REBATE* When You Purchase ESPE PHOTAC®-BOND APLICAP Refill.

NEW! ESPE PHOTAC®-BOND APLICAP
THE FIRST LIGHT-CURED GLASS IONOMER BASE IN CAPSULES

• Lower shrinkage & solubility than other light-cured bases

70275 Intro Pkg. contains Aplicap activator and applier, 50 Aplicaps
70277 Refill 50 Aplicaps

NEW! ESPE KETAC®-ENDO APLICAP
THE WORLD'S FIRST GLASS IONOMER ROOT CANAL SEALER

• A simplified and improved technique for sealing root canals
• No lateral condensation is necessary so potential fracturing of the root is greatly reduced

71121 Intro - 20 Aplicaps, Aplicap activator and applier
71123 Standard - 20 Aplicaps

NEW! ESPE SONO®-CEM
ULTRASONIC CEMENTATION OF INLAYS AND ONLAYS

• Excellent physical properties & easy to seat

70253 Intro - Contains 2 shades (A1, A3) plus catalysts
70255 A1 (base & catalyst) 70257 A3 (base & catalyst)

NEW! PRĒMA® MINI KIT
MORE CONSERVATIVE THAN VENEERS
MORE EFFECTIVE THAN BLEACHES

• Prema permanently & safely removes enamel discolorations

08009 Prema Mini Kit - Contains 10 cups, applicators & tips

* Rebates and 5 FREE shades will be shipped directly from ESPE-Premier upon receipt of your dealer invoice indicating appropriate purchase between 9/1/92 and 11/30/92. This offer is direct from ESPE-Premier. All other offers are available through your authorized dealer

IN U.S.A. MAIL TO: Premier Dental Products Co. • Box 709 • Norristown, PA 19404
IN CANADA MAIL TO: Premier Dental (Canada) Inc. • 480 Hood Rd., Unit #3 • Markham, Ontario L3R 9Z3

DEALER MAY LOWER PRICE IN LIEU OF FREE GOODS.

premier ESPE-premier

Premier Dental Products Co. • ESPE Premier Sales Co. • Box 709, Norristown, PA 19404 U.S.A. • 1-800-344-8235
Premier Dental (Canada) Inc. • ESPE Premier (Canada), Inc. • 480 Hood Rd., Unit #3 • Markham, Ontario, Canada L3R 9Z3 • 1-800-465-8455

CDIP: Better Than Ever

When Henry Ford designed the 1920s Model T, buyers had little choice when it came to the features offered on the mass-produced automobile. It was available in black only, and the spare tires, windshield, lights, speedometer, starter, temperature gauge and bumpers were not included.

Just like the Model T of yesterday, many insurance products designed for the average person do not meet the unique needs of today's professional. As dentists, we have high equipment purchase and maintenance costs, as well as distinctive liability requirements, so we need insurance protection which adequately covers the risks associated with practising. That's why dentists created Canadian Dentists' Insurance Program (CDIP). Today's CDIP plans are custom designed to give you choice, flexibility and reliability, all at a competitive price.

During the spring and early summer, I attended provincial association and society meetings, and carefully listened to the wishes and ideas of many of you. By now, you have heard a little about the many upcoming CDIP plan improvements that CDA, representatives from your provincial associations, and Canadian Dental Service Plans Inc. (CDSPI) have been working on during the past several months. It has been a very busy time, but we've made changes to CDIP to provide the insurance plans that dentists across the country have asked for. That is why I am pleased to have this opportunity to expand on a few of these improvements, which became effective September 1.

But first, I am delighted to confirm that there will be no rate increases to any of the CDIP plans for 1993. CDSPI has secured an agreement from CDSPI's insurers that guarantees that the 1992 rates will remain in effect for next year.

Three Significant Coverages Added to LTD Plan

In today's unpredictable economic climate, disability insurance is needed more than ever in case an illness or injury prevents you from working – for days, months, or even forever. Losing your ability to earn money, even temporarily, can threaten your whole way of life, unless you are prepared. For this reason, CDIP has added three significant coverages to our long-term disability (LTD) plan – Retirement Protection, Deferred Income Tax Expense, and HIV and hepatitis B insurance – which are available now to protect your financial future.

The Retirement Protection option benefits the disability claimant who, while on claim, is unable to contribute to a retirement savings plan due to a lack of earned income. We realize that not being able to fund your retirement can result in severe hardship. This option allows you to maintain retirement contributions during a total disability.

Here's how it works. If you suffer a disability which leaves you unable to perform the regular duties of your occupation, your retirement protection coverage will deposit monthly benefits of $500 or $1,000 (depending on the option selected) in a non-registered retirement fund. These payments continue during disability until you reach age 65. At that time, you can use the accumulated contributions as retirement income. The fund is managed by Montreal Trust with direction from you as an insured participant. You can choose the retirement fund and how the money is invested. Any CDIP LTD participant under age 55 can apply for this option.

As self-employed professionals, we can defer income tax payments for a year by having our business year end on a date other than December 31. But if we become disabled in the year our tax payment is due, we could face a large tax burden on a reduced income.

The new **Deferred Income Tax Expense** option can cover tax payments in this situation. This option pays your deferred income tax liability, due while you are totally disabled, in one lump sum or through monthly payments, whichever you choose.

Aids and hepatitis B are two of the most serious infectious diseases threatening the dental profession. And another important addition to our LTD plan covers you against the effect that contracting HIV and/or hepatitis B can have on the financial stability of your practice.

This is how our new LTD plan benefit works. In the event that a CDIP LTD participant contracts HIV or HBV and his or her practice becomes limited under guidelines approved by the dental profession or a government agency, this benefit pays that individual once their lost earnings reach 15 per cent of their pre-tax income (minus business expenses). This new coverage is now automatically in place for all CDIP LTD participants.

Effective as of January 1993, you will also be able to increase your LTD coverage to a maximum of $12,000 monthly, depending on your income. Higher maximum coverage levels of up to $20,000 monthly (based on your dental practice expenses) will be available on another of our disability plans – office overhead expense insurance.

These are just some of the improvements we've made to CDIP. In June, we published our *Special Report to CDIP Participants* to keep our 13,403 dentist members fully informed about their plan. If you did not receive it, call CDSPI to have your own personal copy sent to you.

We've listened to you and we are going to keep on listening. Keep telling us what you like and what you don't like about your insurance plan and about the service CDSPI is providing. It is important for you to make your concerns known. Only then can we know what we need to change to keep CDIP the best insurance option for all dentists.

Unlike the Model T, we are here for the long haul. ■

*Let's Talk is an open letter to dentists from **Dr. Mel Charendoff**, the president of CDSPI*

CDSPI

Metro Toronto:
296-9401
Toll Free:
1-800-561-9401
(service in English)
1-800-665-9401
(service in French)

Library/Bibliothèque

Patient Acceptance & Planning of Dental Implants

La sélection des patients et la plannification des implants dentaires

1. Arlin, M.L. "Dental implants and the partially edentulous patient. Diagnosis and treatment planning." *Oral Health*. Oct. 1989; 79(10):19-21.

2. Burkes, J. and Salm, C. "Legal and surgical considerations in evaluating candidates for implant procedures." *N.Y.S. Dent J.* Apr. 1989; 55(4):38-39.

3. Clancy, J.M. and others. "A retrospective analysis of one implant system in an oral surgery practice. Phase I: Patient satisfaction." *J Prosthet Dent*. Feb. 1991; 65(2):265-71.

4. Corah, N.L. "Dental anxiety: assessment, reduction, and increasing patient satisfaction." *Dentistry*. Apr. 1990; 10(2):5-9, 23-5.

5. de St. Georges, J. "Using the right words encourages patients to accept treatment plan." *Dent Off*. Mar. 1991; 10(7):8.

6. Evasic, R.W. "Patient qualification for dental implants: an interprofessional team approach." *Dent Today*. Aug. 1990; 9(6):29-30.

7. Evasic, R. "The 4 W's of implants clarify diagnosis." *Dentist*. Jan.-Feb. 1989; 67(1):37, 41-2.

8. Glatz, P.E. "Implant treatment in general practice: creating excellence." *Dent Today*. Mar. 1990; 9(2):40-2.

9. Guaccio, R.A. "An eclectic approach to implant dentistry." *N.Y.S. Dent J.* Apr. 1989; 55(4):41-3.

10. Jones, J. "Partial dentures still a viable option." *Dentist*. May 1990; 68(4):17, 20.

11. Kiyak, H.A. and others. "Psychological impact of osseointegrated dental implants." *Int J Oral Maxillofac. Implants* Spr. 1990; 5(1):61-9.

12. Lillard, J.F. "Age of the dental implant: fact or myth?" *Gen Dent*. Mar.-Apr. 1990; 38(2):109-12.

13. Lillard, J.F. "Management and care of the implant patient." *Dent Manage*. Mar. 1991; 31(3):34-7.

14. Masters, D.H. "Problem solving in implant dentistry." *JADA*. Sept. 1990; 121(3):355-8.

15. Melamed, B.G. "Psychological considerations for implant patients." *J Oral Implantol*. 1989; 15(4):249-54.

16. Misch, C. "Analysis of medical history pinpoints conditions that contraindicate implants." *Dentist*. Mar. 1989; 67(2):23-4.

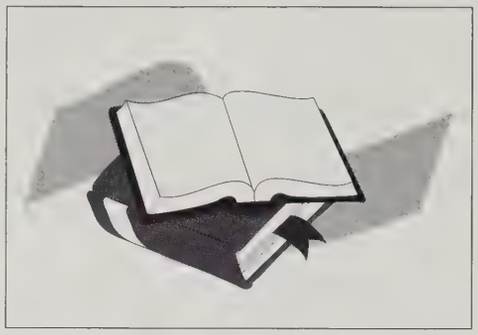
17. Rieder, C.E. "An implant consultation form." *J Calif Dent Assoc*. Apr. 1990; 18(4):29-33.

18. Silversin, J. "Challenge of implant treatment plan acceptance." *Implant Soc*. Mar.-Apr. 1990; 1(1):6, 16.

19. Tavares, M. and others. "Dental implant patients and their satisfaction with treatment." *J Dent Educ*. Nov. 1990; 54(11):670-9.

20. "The team approach to dental implants." *Dent Econ*. Jul. 1991; 81(7):37-8, 40, 42-3.

21. Valadez, S. "Careful planning undergirds success when performing any implant therapy." *Dentist*. Mar. 1990; 68(2):17, 20



Acquisitions

Books

1. Bowley, John F. and Stockstill, John W. *Comprehensive fixed prosthodontics*. Dental Clinics of North America, vol. 36 (3), Philadelphia : Saunders, 1992.

2. Carr, Sharon and Pulley, Mary Lynn. *Marketing your practice*. Dallas : MyoData, 1991.

3. Davis, Leon F. and Ruskin, James D. *Perioperative care of the oral and maxillofacial surgery patient*. Oral and Maxillofacial Surgery Clinics of North America, vol. 4 (3), Philadelphia : Saunders, 1992.

4. Hörsted-Bindslev, Preden. *Dental amalgam – a health hazard?* Copenhagen : Munksgaard, 1991.

One copy of the above package of articles is available for $5.00 to all CDA members and for $10.00 to non-members. (plus GST and, Ontario residents, please include 8% provincial sales tax.)

Daily: 1-800-267-6354

Envoy: CDN.DENTAL.LIB.

FAX: 613-523-7736

Les membres de l'ADC peuvent obtenir pour 5$ et les non membres pour 10$ une copie des articles de la bibliographie ci-dessus.

Aux heures ordinaires:

1-800-267-6354

Programme informatique

Envoy: CDN.DENTAL.LIB

Bélinogramme: (613) 523-7736

Does HIV Cause AIDS? A Review

John Hardie, BDS, M.Sc., FRCD(C)

Introduction

The Human Immunodeficiency Virus (HIV) is now so widely accepted as being the principal cause of the Acquired Immune Deficiency Syndrome (AIDS) that questioning this belief is often viewed as an act of heresy. Recently, however, a number of respected scientists have expressed some reservations in regards to the viral etiology of AIDS. This paper will review their concerns and alternative proposals, and provide a brief description of AIDS and its pathogenesis via HIV – the so-called "Virus-AIDS" hypothesis.

Virus-AIDS Hypothesis

Definitions

AIDS: The criteria associated with the clinical manifestations and medical laboratory parameters of the Acquired Immune Deficiency Syndrome have changed since the original clinical reports of the condition were published in the summer of 1981. A current definition is that the disease or syndrome called AIDS is the opportunistic infections and neoplasms that result from the destruction of the cellular immune system by infection from HIV.[1]

HIV: The Human Immune Deficiency Virus is a member of the *Lentivirinae* subfamily of retroviruses.[2] Lentiviruses are characterized by slowly evolving infections, with long periods of clinical latency, and weak antibody responses accompanied by persistent viremia.[2] HIV has a selective attraction for T4 lymphocytes, which results in the depletion of these cells and, consequently, the profound immunosuppression that is the hallmark of AIDS.[3]

The above definitions illustrate the essence of the Virus-AIDS hypothesis, namely that HIV, by killing T cells (eight to 10 years after infection, on average) is the primary cause of AIDS.[2] This etiology has been accepted by most scientists, and certainly by the media and the public, since the original discovery of HIV by Montagnier in 1983[4] and by Gallo in 1984.[5] (Recently, Gallo's credibility in this context has been questioned.[6]) The collective, conventional perspective on HIV and its relationship to AIDS is as follows:

The accepted portals of entry of HIV are via sexual intercourse, from infected blood or blood products by injection or transfusion, and perinatally from an infected mother to an infant.[3] Following invasion, HIV targets T4 lymphocytes. These cells have a CD4 phenotypic marker on their surface, and they play an integral role – either directly or indirectly – in most immunologic functions.[3] Therefore, their numerical or functional depletion (for whatever reason) will have a deleterious effect on the integrity of the immunologic system. It is postulated[2,3] that the CD4 marker on the T lymphocytes is a high-affinity cellular receptor for HIV, enabling the virus to progressively bind, then fuse to the cell membrane, and subsequently enter into the cell. Within the cell, HIV's RNA is transcribed to DNA by the enzyme reverse transcriptase.[2,3] This proviral DNA is then integrated into the chromosomal DNA of the host T4 cell, and may remain in a latent period until the infected cell is activated. Activation causes proviral DNA to transcribe viral genomic RNA and messenger RNA, which results in the assembly of new HIV, its budding from the cell surface, and the death of the host cell.[2,3] The mechanism by which this released virus causes the death of other T4 cells is unknown, although this mortality must occur to produce the profound immunodeficiency associated with the syndrome. Various *in-vitro* investigations have suggested that HIV may cause further T4 cell depletion: by producing functionless syncytia of T4 giant cells; via the "autoimmune" destruction of T4 cells infected with HIV; or by the release of many unintegrated viral particles, which induce membrane permeability and death of T4 cells.[2,3] Only a small percentage (approximately one in 105) of the cells in the peripheral blood of HIV-positive persons expresses the virus at any given time.[3] It would appear that the T cell pool would be able to compensate naturally for this apparent low rate of T4 cell depletion. Therefore, it would seem that there are other, as yet undetermined, methods by which HIV causes the qualitative and/or functional deficiencies of T4 cells to a level where the resultant immunosuppression induces the clinical and laboratory criteria of AIDS. To date, the mechanisms by which HIV produces T4 cell depletion are not known. However, this step is crucial in the Virus-AIDS hypothesis because it is the immunodeficiency that occurs following T4 cell death that creates the stage for the opportunistic diseases characteristic of AIDS, e.g. pneumocystis carinii pneumonia, candidiasis, and herpes simplex.

In spite of the fact that the precise pathogenesis of HIV-induced AIDS is not known, proponents of this hypothesis remain undaunted, often employing epidemiologic data to justify their position. According to Gallo,[7] the strongest evidence that HIV causes AIDS is based on prospective epidemiologic studies which demonstrate that HIV must be present before AIDS develops. In other words, there would be no AIDs present in countries where there were no HIV-positive persons, but where many people are HIV-positive there is likely to be a considerable number of AIDS victims.[7] Thus, the presence of AIDS in a country follows the introduction of HIV. Similarly, in the United States, HIV infection is concentrated in population groups known to be at high risk for AIDS, namely male homosexuals, intravenous drug abusers, and hemophiliacs.[7] To substantiate their claim, Gallo et al[7] note that the removal of HIV from the American blood supply has "almost completely prevented the further appearance of AIDS in blood transfusion recipients."

Epidemiologic data does show that: HIV can be detected in most AIDS patients; HIV transmission results in AIDS; and that blocking HIV transmission prevents AIDS.[7] In fact, it seems that these factors, rather than a precise comprehension of HIV's pathologic mechanisms, are behind the widespread popularity and acceptance of the Virus-AIDS hypothesis.

The Vancouver Hypothesis

In 1991, two University of British Columbia scientists published research that suggested another immunologic basis for AIDS. Kion and Hoffmann[8] based their investigation on the similarities between AIDS and graft-versus-host disease (GVHD). In GVHD, allogenic (from another individual) T lymphocytes within the graft can destroy cells in an immunodeficient host. Kion and Hoffmann knew that exposure to allogenic cells may occur when individuals receive foreign lymphocytes via ejaculates or blood (through I.V. drug abuse or transfusions). Using a mouse model, the researchers postulated that the normal immune response to HIV may – through a series of complex autoimmune type mechanisms – react with the allogenic response created by foreign T lymphocytes to collapse the immune system, resulting in the immunodeficiency associated with AIDS.[8]

There are two interesting aspects to this hypothesis. The first is that while HIV infection is necessary before the development of full-blown AIDS can occur, foreign lymphocytes derived from the lifestyle activities associated with sexual intercourse and/or blood transfer (e.g. IV drug use or transfusions) must also be present. The second is that autoimmunity represents an enhancement or over activity of the immune system. It is controlled by immunosuppressive techniques, which are the exact opposite of current AIDS treatments directed at boosting immune responses.

The Syphilis Hypothesis

Syphilis is a sexually transmitted disease with severe pathologic consequences and a high degree of social stigmatization. In the past, and even today, it has been associated with social and sexual mores, individual rights versus the common good, doctor-patient relationships, confidentiality, and public health educational programs.[9] Therefore, it is not surprising that a relationship between AIDS and syphilis should be considered.

A major proponent of the hypothesis linking AIDS to chronic syphilis is Caiazza, a U.S. physician.[10] In 1987 he postulated that:

- Repeated exposure to spirochetes, mainly Treponema pallidum, is the primary insult to the immune system that eventually results in AIDS;
- A viral cause does not explain the clinical manifestations of AIDS;
- The clinical parameters of AIDS are better explained as the end result of chronic and reactivated bacterial infection.
- AIDS and syphilis are transmitted in a similar manner, and in the United States are diagnosed among similar high-risk groups;
- Syphilis, for more than 40 years, has been inadequately treated with benzathine penicillin, resulting in chronic syphilis;
- Chronic syphilis has no accurate diagnostic tests.[10]

On this basis, Caiazza has successfully treated AIDS patients employing large doses of penicillin and doxycycline.[10]

Although similarities between AIDS and syphilis cannot be denied,[9] Caiazza's hypothesis is subject to several flaws. Sexually-transmitted diseases (STDs) such as syphilis, gonorrhea, and chlamydia, are strongly associated with promiscuous sexual behavior. Therefore, it should not be unexpected that many AIDS patients would have evidence of clinical or sub-clinical syphilis, but this does not imply that syphilis causes AIDS.[10] Similarly, this hypothesis does not explain AIDS in hemophiliac children who do not have syphilis.[10] Finally, syphilis in Britain is treated differently than in the United States, and in a manner better designed to prevent chronic syphilis.[10] Nevertheless, AIDS does exist in Britain.

A 1988 study[11] demonstrated a relationship between genital ulcer disease and the development of HIV infection in homosexual males. The two most common causes of genital ulcers in such males are syphilis and herpes simplex virus infection. The authors concluded that the ulcerations provided a portal of entry or exit for HIV, and that the immunologic activation associated with these two diseases made host lymphocytes more susceptible to HIV infection.[11]

Thus, it may be appropriate to modify the syphilis hypothesis to state that, rather than being the cause of AIDS, syphilis may be a significant co-factor in the development of the disease.

The Mycoplasma Hypothesis

In 1986, S-C Lo, working for the U.S. Armed Forces Institute of Pathology, discovered a microorganism that was not HIV, and did not belong to any group of known viruses, in the spleen and Kaposi's sarcoma of AIDS patients.[12] Subsequent studies demonstrated that the microorganism was infectious,[13] and occurred not only in AIDS patients but also in previously healthy non-AIDS patients with acute fatal disease, the cause of which had not been determined.[14] Lo termed the microorganism a virus-like infectious agent (VLIA). In 1989, he identified it more specifically as Mycoplasma Incognitus, a rarely isolated genital mycoplasma belonging to the mycoplasma fermentans group.[15]

Lo hypothesized that Mycoplasma incognitus may:

- be an opportunistic infection in patients immunocompromised via HIV or other infections;
- make HIV more cytopathic to T4 cells;
- be pathogenic by itself, on the basis of the previously healthy non-AIDS patients who died of the infection;
- cause autoimmune disease in people with AIDS.[16]

According to a recent report,[16] Lo considers M. incognitus to be a sexually transmitted human pathogen that causes chronic debilitating disease, a condition similar to AIDS. During a 1991 symposium, Montagnier (the discoverer of HIV) stated that AIDS may not be caused by HIV alone,[16] but that co-factors such as mycoplasma may play an as yet unidentified but essential role. In addition to M. incognitus, Montagnier is investigating the role of Mycoplasma pirum, which is found on lymphocytes.[16] An interesting comment by Montagnier is that mycoplasma can induce the effects of retroviruses in animals.[16]

Montagnier's statements give some credence to Lo's mycoplasma hypothesis. A significant therapeutic factor in this hypothesis is that M. incognitus is sensitive to ciprofloxacen and, to a lesser degree, to clindamycin, lincomycin, chloramphenicol, tetracycline, and doxycycline.[17] Interestingly, the latter drug was used by Caiazza in his "syphilitic treatment" of AIDS.

The Swine Fever Hypothesis

In 1983, Teas and Beldekas postulated that AIDS might be caused by the African Swine Fever Virus (ASFV) and conducted tests to prove this theory.[18] It was based on Teas's observation[19] that AIDS and ASFV appeared in Haiti at approximately the same time, and that ASFV is found in pigs in Zaire, which

has a high incidence of AIDS.[19] In addition, while acute ASFV infection is often fatal in pigs, the chronic form of ASFV[18] produces generalized lymphadenopathy, weight loss, fatigue, and decreased lymphocyte counts, clinical signs very similar to those of AIDS. Beldekas' laboratory studies have demonstrated that the viral proteins of HIV and ASFV share common features, yet the former is an RNA virus and the latter a DNA virus.[18] Although officials do not consider ASFV to be a pathogen in man, studies at the Blood Center in New York have demonstrated antibodies to ASFV in potential blood donors.[18] The fact that such antibodies were formed would indicate that ASFV has some potential as a human pathogen.

According to the Teas and Beldekas Hypothesis, ASFV is pathogenic to man. As a DNA virus, it is attracted to macrophages and destroys them, which, in turn, leads to T4 cell lymphocyte depletion, since lymphocyte numbers, to a degree, are controlled by macrophages.[18] The two researchers believe that ASFV spread from Africa to Haiti to Florida. This parallels the accepted route of transmission of AIDS from Africa to the United States. Opponents of this hypothesis point out that ASFV was eradicated from U.S. pigs in 1950, but admit that today's pigs would be susceptible to the virus.[19] Teas[19] responds to this by stating that: "If you do not look for a disease, you are not going to find it." In addition, she points out that there is no surveillance in the U.S. for African swine fever virus.[19]

The Teas and Beldekas hypothesis may or may not be valid. However, it is revealing that in 1986, the United States Department of Agriculture decreed that no more government resources would be allocated to investigating a relationship between ASFV and AIDS.[18] According to the perhaps jaundiced opinion of Beldekas, the decision was taken "because pork (in the U.S.A.) is a $10 billion a year industry."[18]

The Risk-AIDS Hypothesis

The major proponent of the risk-AIDS hypothesis is Duesberg, a virologist who, since 1987,[20] has questioned the commonly accepted role of HIV as the cause of AIDS. During the past five years, his theories have gained a number of supporters, i.e. Root-Bernstein,[21] Rubin,[1] and Stewart.[22] Duesberg's opinions have been examined in a number of controversial articles,[21,23,24,25,26] debates,[1,7] and letters to journal editors.[22,27,28,29] The researcher published significant articles on the topic in 1987,[20] 1989,[30] and 1990.[31] It was in 1990[31] that he clearly articulated the risk-AIDS hypothesis, however, which suggests that AIDS is caused primarily by non-infectious agents.[31]

According to Duesberg,[20,30,31] the non-infectious agents are risk behaviors or states which, over time, suppress the immune system. These include:

- psychoactive drugs (I.V. drugs, "recreational" cocaine, and aphrodisiacs such as the amyl and butylnitrites);
- protein deficiency malnutrition;
- multiple infections (syphilis, gonorrhea, chlamydia, herpes simplex, hepatitis, cytomegalovirus, and/or Epstein-Barr virus);
- overmedication with antibiotics;
- AZT (a drug that has been used to treat AIDS since 1987, but is, nevertheless, a direct immunosuppressant);
- blood transfusions and blood products for hemophilia.

Duesberg's hypothesis contends that it is the immunodepression induced by one of the above factors, or a combination of them, that results in the clinical opportunistic diseases associated with AIDS.

Duesberg's major criticism of the HIV hypothesis is that the virus does not satisfy the Henle-Koch postulates for an infectious microorganism.[21] These state that:

1. the microorganism must be present in every case of the disease.

2. it must be isolated and grown in pure culture.

3. the pure culture, when inoculated into a susceptible animal, must reproduce the disease.

4. the microorganism must be observed in, and recovered from, the experimentally diseased animal.[32]

Duesberg believes[33] that HIV fails to meet these criteria because:

1. it is not possible to detect free HIV virus, provirus, or viral RNA in all cases of AIDS. (Interestingly, current Centers for Disease Control (CDC) guidelines permit AIDS to be diagnosed without laboratory evidence of HIV.[34])

2. it cannot be isolated from 20 to 50 per cent of AIDS cases.

3. in violation of the third and fourth postulates, HIV does not reproduce AIDS when it is inoculated into chimpanzees or, accidentally, into humans.

In addition to these concerns, Duesberg[20,30,31] and his supporters list other reasons why they believe HIV is not the cause of AIDS:

- When a virus is pathogenic, it is found in large numbers in the infected cells. With AIDS, however, less than one in 500 lymphocytes contain a latent HIV provirus, and only one in 104 to 105 contain an active provirus (the same number that is found among asymptomatic carriers of HIV).
- If HIV kills T cells directly, then it is difficult to understand how they could become latent reservoirs of HIV, producing AIDS eight to 10 years after infection.
- A common method of testing for AIDS is to demonstrate the presence of HIV antibodies, the so-called "AIDS test." All other viruses cause disease before antibodies to them are formed.
- Viruses, including pathogenic retroviruses, cause disease within weeks of infection, yet HIV takes, on average, eight to 10 years to cause AIDS in adults.
- HIV takes eight to 10 years to cause AIDS in adults, but only two years in children. (Interestingly, children with AIDS die from pediatric diseases, and not from the typical AIDS diseases, such as Kaposi's sarcoma.)
- HIV is supposed to cause Kaposi's sarcoma, lymphomas, and AIDS dementia. However, HIV has not been found in either Kaposi's sarcoma or neurons, while people and animals with T cell deficiencies have no more malignancies than those with intact immune systems.
- It is difficult to explain why pneumocystis pneumonia is the most common AIDS-related disease in the United States, while slim disease fever, and diarrhea are the common AIDS-related diseases in Africa, yet Pneumocystis carinii is present in all humans.
- HIV appearance as a sexually transmitted disease, about 10 to 20 years ago, does not account for the fact that AIDS in Africa has an equal sexual distribution, but in North America it is diagnosed in males in 90 per cent of cases.
- An HIV cause for AIDS does not

ONCE IN A WHILE AN IDEA COMES ALONG THAT'S SO POWERFUL, IT CHANGES THE WAY WE THINK

NEW NON-NARCOTIC

TORADOL

10 mg TABLETS & 30 mg IM INJECTIONS

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

Toradol is a powerful new idea in the treatment of pain: a non-narcotic analgesic with narcotic-strength efficacy.

By class, Toradol belongs to the non-steroidal anti-inflammatory drug (NSAID) family. However, unlike conventional NSAIDs, it is a potent analgesic agent with minimal anti-inflammatory and antipyretic activity. And, it's the first peripherally-acting analgesic to be available in both IM injection and tablet formulations.[1,2]

One Toradol 30 mg IM injection has been proven to be as effective as morphine 12 mg IM and meperidine 100 mg IM.[3-9] And clinical studies have shown that one Toradol 10 mg tablet is more effective than acetaminophen 600 mg + codeine 60 mg (i.e., two tablets of acetaminophen + codeine #3).[10-12]

But, because Toradol is non-narcotic,[1] it has a more favourable tolerability profile than morphine, meperidine and acetaminophen-codeine combinations with less nausea, vomiting, drowsiness[10,11,13] and constipation.[1] What's more, Toradol has no narcotic addiction or abuse potential.[14]

Since Toradol is not a controlled substance,[2] there's no need to worry about narcotic control or security procedures. As well, Toradol has no narcotic prescribing restrictions.

So, for the management of acute, mild to severe pain in your practice, think about Toradol IM and tablets. Narcotic efficacy without narcotic drawbacks.

PROVEN EFFECTIVE IN A WIDE RANGE OF POST-OPERATIVE AND OTHER ACUTE PAIN CONDITIONS

POST-OPERATIVE PAIN[3-8, 15]

LOW BACK PAIN & SCIATICA[16-18]

SPRAIN, STRAIN & FRACTURE PAIN[12, 18-21, 8]

GYNECOLOGICAL PAIN[3-8, 22,23]

POST-DENTAL EXTRACTION PAIN[10, 11]

NEW NON-NARCOTIC

TORADOL®

10mg TABLETS & 30mg IM INJECTIONS (KETOROLAC TROMETHAMINE)

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

Toll-free Toradol Information Hotline 1-800-561-5481

PAAB CCPP

BISCO

INTRODUCES

THE 4TH GENERATION

UNIVERSAL ADHESIVE SYSTEM

FEATURING UNIQUE WET (MOIST)* BONDING

ALL-BOND® 2 DUAL CURABLE

ONE BONDING SYSTEM FOR ALL YOUR BONDING NEEDS

The ALL-BOND®2 system bonds to **dentin, enamel, metal** (precious and non-precious) **composite,** and **amalgam**

- Easy to follow instruction cards for all techniques
- Compatible with all composite brands
- Root desensitizing

*WET OR (MOIST) DOES NOT MEAN SALIVA CONTAMINATION

ALL-BOND®

OPAQUER/C&B

Companion kit for metal bonding, crown and bridge cementation

- Five shades of opaquer to attain all Vita Shades

ALSO AVAILABLE

ALL-BOND®

LINER-F

- Fluoride releasing
- Dual curable filled resin
- Amalgam bonding

BISCO THE SOURCE FOR COMPOSITE & ADHESIVE TECHNOLOGY

BISCO

Bisco Dental Products (Canada) Inc.
101-11500 Bridgeport Road
Richmond, B.C. V6X 1T2 1-604-276-8662
1-800-667-8811 (British Columbia, Alberta, Saskatchewan, Manitoba, Quebec)

Clinical Research Dental Supplies and Services Inc.
P.O. Box 28040
London, Ontario
N6H 5E1
1-800-265-3444 (Ontario)

explain why Kaposi's sarcoma is found usually only in homosexuals and not in other high-risk groups. (Interestingly, the so-called "HIV-induced Kaposi's sarcoma" is, morphologically, no different from the one that appears in non-AIDS cases.)

- I.V. drug abusers with AIDS suffer from the same progressive emaciation as drug abusers without AIDS.

It is, according to Stewart,[21] difficult to attribute AIDS to one virus, as that virus would then be responsible for inducing Kaposi's sarcoma in American homosexuals; wasting diseases among I.V. drug users; and for activating other viruses, bacteria, fungi, protozoa and opportunistic pathogens. Furthermore, the virus would have different patterns of transmission according to its geographic location. Therefore, the proponents of the risk-AIDS hypothesis suggest that, outside of Africa, AIDS occurs almost exclusively in persons with a narrow range of risk factors, i.e. promiscuous male homosexuals/bisexuals who practise penetrative anal intercourse; drug addicts who share needles and syringes; recipients of infected blood or blood products; prostitutes and their clients; and babies born to mothers having some of these risk factors. They believe that such lifestyles promote the spread of many pathogens that are capable of exhausting the immunologic response, without the assistance of HIV.[21]

Duesberg[31] believes that the risk-AIDS hypothesis explains why:

- AIDS is limited to risk groups rather than being random in the population, as would be expected from an infectious cause;
- antibodies to HIV, "the AIDS test," do not protect against the development of AIDS;
- there is a latent period that is not due to "hidden HIV," but instead to the length of time the various risk factors take to destroy the immune system;
- AIDS presents so differently in the United States as compared to Africa. (In the U.S., AIDS is believed to be due to drug consumption — nitrites, cocaine, AZT — among homosexuals, whereas in Africa it is based upon malnutrition and common parasitic infections);
- HIV actively infects less than one in 10,000 people and, latently, less than one in 500 lymphocytes – even in persons dying with AIDS – and could be present in such low numbers only if it was "an innocent bystander."

As a summation to his hypothesis, Duesberg[31] states that since HIV is very difficult to transmit and not widespread in the U.S., the risk of acquiring an HIV infection relates to the frequency of intimate contact with those most likely to be infected, i.e. promiscuous homosexuals, drug addicts sharing needles, practising prostitutes, or hemophiliacs. Therefore, according to the risk-AIDS hypothesis, HIV is not the cause of AIDS, but a surrogate marker of AIDS risks.

Summary

It would require a detailed knowledge of virology, molecular biology, epidemiology, clinical medicine and politics, to appropriately compare and contrast the hypotheses on the causes of AIDS. The purpose of this review was not to do that, but to inform colleagues that alternative etiologies for AIDS have been considered. No doubt, this healthy questioning will continue until it has been demonstrated – via controlled studies of high-risk groups (both HIV positive and negative), matched for all other characteristics – that only those individuals with HIV positivity actually develop AIDS.

It cannot be denied that a common theme to the hypotheses is the presence of high-risk activities. This has been used against the risk-AIDS hypothesis. How, for example, could it explain babies born with immunodeficiencies, K. Bergalis contacting AIDS from her dentist, the British nurse who died of AIDS after contracting HIV from her husband, or AIDS in the wives of hemophiliacs? It may be that these people died of specific diseases (leukemia, pneumonia, infections), which 20 years ago would have been diagnosed as such. Now, because these individuals are found to be HIV positive, they are viewed as AIDS patients. Alternatively, they may not have been asked about their nutritional status, use of psychoactive drugs, and immunosuppressive sexual practices. Additionally, it is possible that by the time AIDS was diagnosed they may have already received numerous antibiotic (immunosuppressive) drug treatments.

In North America, for whatever reason, AIDS is associated with high-risk groups. Accordingly, until the etiology of AIDS is resolved, it may be more appropriate to adopt preventative programs that concentrate on AIDS risks rather than developing specific policies aimed at preventing HIV transmission.

Dr. John Hardie *is the head of the department of dentistry at Vancouver General Hospital, 855 West 12th Ave., Vancouver, B.C. V5Z 1M8.*

Reprint requests to **Dr. Hardie**.

References

1. Ginsberg, H.S. Scientific Forum on AIDS: A Summary – Does HIV Cause AIDS? *J of Acq Imm Def Synd* 1:165-172, 1988.
2. Greene, W.C. The Molecular Biology of Human Immunodeficiency Virus Type 1 Infection. *NEJM* 324(5):308-317, 1991.
3. Fauci, A.S. The Human Immunodeficiency Virus: Infectivity and Mechanisms of Pathogenesis. Science. 239:617-622, 1988.
4. Barre-Sinoussi, F., Chermann, J.C., Rey, F. et al. Isolation of a T-lymphocyte retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS) *Science* 220:868-871, 1983.
5. Gallo, R., Salahuddin, S.Z., Popovic, M. et al. Frequent detection and isolation of cytopathic retroviruses (HTLV-111) from patients with AIDS and at risk of AIDS. *Science* 224:500-503, 1984.
6. NIH Goes "Extra Mile" for Gallo. *Science* 247:908, 1990.
7. Blattner, W., Gallo, R.C., Temin, H.M. HIV Causes AIDS, *Science* 241:515-516, 1988.
8. Kion, T., Hoffmann, G.W. Anti-HIV and Anti-MHC Antibodies in Alloimmune and Autoimmune Mice, *Science* 253:1138-1140, 1991.
9. Brandt, A.M. The Syphilis Epidemic and its Relation to AIDS. *Science* 239:375-380, 1988.
10. AIDS and the Syphilis Connection: Fact or Fiction, Ontario Disease Surveillance Report 9(10):180-183, 1988.
11. Stamm, W.E., Handsfield, H.H., Rompalo, A.M. et al. The Association Between Genital Ulcer Disease and Acquisition of HIV Infection in Homosexual Men. *JAMA* 260(10):1429-1433, 1988.
12. Lo, S.C. Isolation and Identification of a Novel Virus from Patients with AIDS. *Am J Trop Med Hyg* 35(4):675-676, 1986.
13. Lo, S.C., Shih, J.W.-K., Yang, N.-Y. et al. A Novel Virus-Like Infectious Agent in Patients with AIDS. *Am J Trop Med Hyg* 40(2):213-226, 1989.
14. Lo, S.C., Dawson, M.S., Newton, P.B. et al. Association of the Virus-Like Infectious Agent Originally Reported in Patients with AIDS with Acute Fatal Disease in Previously Healthy Non-AIDS Patients. *Am J Trop Med Hyg* 41(3):364-476, 1989.
15. Lo, S.C., Shih, J.W.-K., Newton, P.B. et al. Virus-like infectious agent (VLIA) is a novel pathogenic mycoplasma: M. incognitus. *Am J Trop Med Hyg* 41:586-600, 1989.
16. Ostrom, N. HEAL Symposium Examines Role of Mycoplasma in "AIDS." *N.Y. Native*, May 21st, 1991.

17. Hayes, M.M., Wear, D.J., Lo, S.C. In Vitro Antimicrobial Susceptibility Testing for the Newly Identified AIDS-Associated Mycoplasma. *Arch Pathol Lab Med* 115:464-466, 1991.
18. Ostrum, N. One of Gallo's Victims Speaks Out. *N.Y. Native*, August 19th, 1991.
19. Teas, J. Consideration in Searching for the Cause of AIDS. *Annals N.Y. Acad Sc* 437:270-272, 1984.
20. Duesberg, P.H. Retroviruses as carcinogens and pathogens: expectations and reality. *Cancer Res* 47:1199-1220, 1987.
21. Ross, M. Is HIV the only culprit? *The Globe and Mail*, May 11th, 1991.
22. Stewart, G.T. Uncertainties about AIDS and HIV. *The Lancet*, June 10th, 1989.
23. White, K. Controversy: Berkeley Scientist Challenges HIV as Cause of AIDS. *AIDS Patient Care*, pp. 21-23, Feb., 1988.
24. Swift, D. Does HIV cause AIDS. *Medical Post*, pp. 9-10, Dec. 18, 1990.
25. Booth, W. A Rebel Without a Cause of AIDS. *Science* 239:1485-1488, 1988.
26. Ward, M. HIV: "Deadly AIDS Virus," or One More Watergate? *Christopher Street* 154:15-20, 1991.
27. Correspondence, *NEJM* 322(20):1466-1469, 1990.
28. Letters, *Science* 241:997-998, 1988.
29. Notes and News, AIDS and HIV: A Myth? *Lancet* p. 1031, May 6, 1989.
30. Duesberg, P.H. Human immunodeficiency virus and acquired immunodeficiency syndrome: Correlation but not causation. *Proc Natl Acad Sci U.S.A.*, 86:755-764, 1989.
31. Duesberg, P.H. AIDS: Non-Infectious Deficiencies Acquired by Drug Consumption and Other Risk Factors. *Res Immunol* 141:5-11, 1990.
32. Doorland's Illustrated Medical Dictionary, 27th Ed, W.B. Saunders, Toronto, 1988.
33. Duesberg, P. HIV is Not the Cause of AIDS. *Science* 241:514, 1988.
34. Centers for Disease Control, *MMWR* 36(suppl 1):IS-15S, 1987.

MAY WE HAVE YOUR ATTENTION, PLEASE?

CDA ACCESS now offers ATTENTION GRABBERS! For a low additional cost, you can spruce up your classified notices with special eye-catching typography and art. Call Ola Murphy at (800) 661-5004 or (416) 278-6700 for information about this exclusive CDA ACCESS feature.

Here are some examples of CDA ACCESS ATTENTION GRABBERS! This feature is available only to Dental Professionals, at the following prices:

ALTERNATE BORDER	$12.50	SYMBOL	$25.95
SHADED	$15.95	SHADOW	$29.50
REVERSE	$19.95		

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Canadian Dentists' Insurance Program Disability Facts and Myths

Barry McNulty

Most readers of this publication are well aware that Canadian Dental Service Plans Inc. (CDSPI) recently changed its disability insurance carrier and raised its premiums for basic life, long-term disability and office overhead expense coverage.

The reasons for the switch from Metropolitan Life to the Prudential Group Assurance Company of England (Canada) were explained in detail in the December 1991 *Journal* ("CDIP: Still Your Best Insurance Choice," CDSPI Reports. *J Canad Dent Assoc* 57(12):922-923, 1991). Additional information was provided by both Dr. Les Allen, then the president of CDA, and Dr. Mel Charendoff, the president of CDSPI, in the February 1992 issue of the publication.

Still, for disability insurance sales representatives employed by other companies, CDA's decision to switch carriers must have seemed like the answer to a prayer. For years, one of their main arguments against dentists obtaining disability coverage through the Canadian Dentists' Insurance Program (CDIP) has been this very possibility. And for many dentists, the prospect of being uninsurable while the contract was being changed, or that the new carrier may not take them on as a risk, were persuasive arguments indeed.

If you were telepathic at the time the switch from Metropolitan to Prudential occurred, I'm sure you would have sensed a collective "I told you so" from disability agents everywhere. Judging from the amount of activity, special deals, and shear volume of proposals offered to Canadian dentists in the wake of CDA's decision, this must have been the case.

Chancellor Consultants Inc., the company I work for, specializes in advising dentists on both their practice and personal planning. As such, in recent months our filing cabinets and "in baskets" have been bulging with an ever-increasing number of new disability proposals from a variety of agents. These plans, sent to us by clients seeking comment and recommendations, all seemed to include an us versus CDIP comparison. And in each case, the features of the competing plan were described in a very favorable light relative to the new CDIP offering.

Barry McNulty

The main points stressed in the disability proposals we received were overall price and continuance of coverage, as well as a confusing array of additional features. Interestingly enough, there seemed to be a great deal of inconsistency when we compared these proposals, even when different agents were apparently recommending the same carrier. This made it difficult to make a valid assessment of what was being offered, to say the least.

At the same time, Chancellor was very concerned about CDA's change in carriers, and all the resulting rumors. Traditionally, we, as a firm, have had a great deal of confidence in CDIP products, believing that they provided very good value in relation to their cost. As such, most of our clients had taken out at least some of their coverage through CDIP.

This is not to say that Chancellor did not recommend other insurers from time to time. (We do not sell any financial products ourselves). Many companies offer excellent alternatives to CDIP. Our main concern isn't the actual carrier that our clients choose to deal with (providing the firm is reputable and financially sound), but rather that they have the right coverage and are getting value for their premium dollar.

A fundamental basis for making good decisions or recommendations is a clear understanding of the facts. With all of the conflicting and confusing information that we'd received relative to CDIP's new offering, there was only one way to obtain reliable data, in my view. Chancellor already had lots of input from the other insurance carriers, so I contacted Clyde A. Harris, CDSPI's manager of administrative services, to get the other side of the story. Clyde was very receptive, and also arranged for an executive of Prudential, the new carrier, to attend the meeting.

It might be useful to review some of the background information that I obtained during this get-together. Prudential specializes in association plans, and handles, among others, the highly successful Ontario Medical Association program. Group insurance programs are not the same as association programs. However, the previous carrier, Metropolitan, had apparently handled CDIP's plans in much the same way as they would have dealt with a group insurance package, where everyone is covered on an annually renewable basis. But association coverage means individual protection — similar to what you might acquire from any insurance company on a personal basis — under a master umbrella.

Effectively, all Prudential does is act as an underwriter and claims adjudicator for the program. Their fees are built in and guaranteed. Any excess premiums or any losses are reflected in the CDIP program. Under the new contract, 85 per cent of premiums will go into the payment of claims or be returned to policy holders as either plan improvements or premium refunds. This compares very favorably with the industry average, where only 55 per cent of premiums are paid out in claims. In other words, the contract with Prudential is similar to a fee for service arrangement, where the emphasis is on providing more value and continued enhancements, if possible.

I was particularly interested in the continuity of coverage during the changeover process. Apparently, however, it was a condition of Prudential being awarded the contract that they "pick up" everyone who was covered by the previous carrier, without requiring these individuals to undergo a medical

examination. Although this does not guarantee that a future insurer would be willing to follow the same policy, Clyde Harris made a point of stating that such a stipulation would be a critical factor in any negotiations with a new carrier, should the need to change carriers arise again. This makes sense to me, and is consistent with my previous understanding.

CDSPI is a non-profit organization established by dentists and managed by dentists for the benefit of dentists. It's very hard to imagine that CDSPI would want to enter into a new insurance arrangement that would leave some of their members without coverage.

According to Clyde Harris, some of the main reasons that CDA (based on CDSPI's recommendations) chose Prudential as the new carrier for CDIP are:

- Prudential's expertise in dealing with professional associations;
- Prudential's superior underwriting and adjudication abilities;
- The structure of the Prudential program, which includes an emphasis on rehabilitation services;
- Prudential's depth of management and specialized staff.

After my meeting with Clyde, and a subsequent analysis of the information I received from CDSPI and Prudential, I still feel very positive about the CDIP disability offering. The comparisons and analyses provided by the various insurance companies do not, obviously, stress the advantages offered by CDIP. These include things like the fact that CDSPI — an informed, influential advocate — monitors all CDIP insurance claims and applications on behalf of the participating dentists. Although they can't force a decision on Prudential, they are certainly in a position to tip the scales in the dentists' favor wherever possible. Another reason Chancellor has recommended CDIP in the past, and will continue to do so in the future, is that it gives dentists an opportunity to take care of their insurance needs without being concerned about sales pressure or a potential conflict of interest. Selling insurance is a tough, competitive business, and the people who survive in it are noted for their persuasive talents. There's a big difference between buying what you need and being sold something extra.

With respect to disability coverage, it's true that many insurers offer considerably more options than CDIP (for which you pay extra). Frankly, in many cases, the value of these options is questionable, in my view, and they can be somewhat confusing. I have always believed that dentists will obtain the greatest value for their insurance dollars by insuring themselves against the greatest potential risks. This is the fundamental premise for obtaining insurance in the first place. My analysis of CDIP's current disability offering indicates that it does provide the necessary coverage. Specifically, it provides:

- A good basic definition of disability. This is one of the main points to look for when acquiring disability coverage. "You are considered disabled if, as a result of sickness or injury, you are unable to perform substantially the whole of the duties of your regular occupation, you are under the regular care of a physician, and you are not gainfully employed in any other occupation."
- If you are "gainfully employed" but have suffered a loss of earned income of at least 15 per cent due to sickness or injury, then the residual benefit will apply (you have to be under the regular care of a physician). It applies not only if you are not working in dentistry, but also if you are working as a dentist and the income loss results from your inability to either perform one or more of the regular duties of your occupation, or to perform the essential duties for as much time as those duties require. Under the residual benefit, the amount you get is determined as a ratio of the loss from your pre-disability, pre-tax income. In other words, if your income was down by, say, 50 per cent, you could be entitled to 50 per cent of your benefits.
- "Own Occupation" coverage is available as an option. It's been offered this way because, when you think about it, this residual definition goes a long way toward covering you against your greatest disability risks. The way CDIP and Prudential feel, approximately 90 per cent of disability claimants, who go back to work, return to their own profession. If you went back to work in dentistry, the residual benefit of any insurance company's policy may well apply, even if you spend all that money for the expensive "own occupation" definition. If you want the "own occupation" definition, it's there, but think it over. Will you really be getting value for your money?
- CDIP offers a good "Cost of Living Allowance (COLA)" alternative, in that it compounds and has no upper limit beyond a yearly maximum of eight per cent. This is not true of all of the other products being offered in the marketplace.
- CDIP's "Future Insurance Guarantee" option also compares very favorably, and is quite competitively priced.
- CDIP offers only two elimination period alternatives, 30 days or 90 days. However, in my experience, these alternatives cover most situations. Very few people will experience a grave financial disaster if they are off work for less than a month. The biggest risk involved with a short-term illness or accident, where dentists are concerned, relates to the costs of maintaining their practice, and this, of course, can be covered with office overhead insurance. Once again, you don't get the best value for your premium dollars by spending money for coverage that you don't need. There are circumstances, however, that primarily affect individuals who have a substantial net worth and are very liquid, where an elimination period beyond 90 days makes sense. In cases such as this, I refer clients to carriers other than CDIP.

On the subject of pricing, I reviewed quite a number of proposals. Without exception, none of them consider the time value of money. For example, a dollar saved 10 years from now cannot be compared with a dollar spent today. In fact, when you consider that you could invest your money today for, say, seven per cent, a dollar saved 10 years from now would only be worth roughly 50 cents today. I urge you to use "present value (PV)" analysis (which applies a discount rate to bring varying future cash inflows or outflows of different alternatives to their present value, so that they can be accurately compared) before making a price comparison of these products. When I apply these generally accepted analytical formulas to the proposals I've seen, CDIP is usually competitive. If you are not familiar with PV analysis, your professional financial advisor should be able to do it for you in a few minutes.

Your CDIP information kits contain all the details you need to make your own assessment of the program. Before making any decisions about your own insurance coverage, I suggest that you refer to this document, and consult your professional advisors, to ensure that you are obtaining coverage that suits your unique circumstances. ■

Barry McNulty *is a registered financial planner with Chancellor Consultants Inc. of Markham, Ontario.*

The Teaching of Geriatric Dentistry in Canada

J.R. Vincent, BA, DDS, M.Sc.
P. Massicotte, BA, DMD, MA
R.Y. Barolet, B.Sc., B.Eng., DDS, MSD

ABSTRACT

Very little is known about the current status of geriatric training programs at Canadian universities because of the scarcity of information published on the subject. A study of the geriatric dentistry training programs offered by Canada's 10 dental schools has been completed. Its intent was to determine what type of educational activities in geriatric dentistry have either been offered in the past, are being offered now, will be offered in the next academic year, or are planned for the next five years. The results indicate that the 10 schools are doing very little in this regard. To keep pace with the level of geriatric dentistry training currently being offered in the United States, the dental profession must convince Canadian faculty members that the teaching of geriatric dentistry is crucial to both the undergraduate student and the graduate dentist. Continuing education in geriatric dentistry could be used to meet the oral health needs of our frail and dependant senior citizens. Geriatric dentistry must be taught at all levels of the profession so that this special clientele can receive the necessary treatment either within or outside of the dental office.

SOMMAIRE

Nous connaissons mal l'état de l'enseignement de la dentisterie gériatrique au Canada parce que peu d'articles ont été publiés sur le sujet. Devant cette constatation, une étude a été entreprise auprès des dix facultés de médecine dentaire canadiennes afin de connaître le type d'activités d'enseignement en dentisterie gériatrique qui sont déjà entreprises, qui sont planifiées pour la prochaine année universitaire ou encore pour les cinq prochaines années. Les résultats nous ont démontré que peu de choses étaient entreprise par les facultés de médecine dentaire canadiennes. Pour ratrapper l'enseignement universitaire américain, il faudrait d'abord convaincre le corps professoral des universités canadiennes de la pertinence d'offrir une formation spécifique aux étudiants afin de mieux traiter la clientèle des personnes âgées, surtout celle en perte d'autonomie physique et mentale puis aux dentistes gradués par le biais de l'éducation continue. La formation en dentisterie gériatrique doit s'enseigner à tous les niveaux afin que la profession dentaire soit plus sensibilisée et mieux préparée pour recevoir cette clientèle ou encore à leur rendre visites hors de leur cabinet dentaire.

Key Words

Geriatric dentistry, education, teaching, continuing education, undergraduate, curriculum, Canadian dental faculties.

A review of the dental literature published in Canada has shown that there have been very few articles written on the subject of geriatric dentistry. American publications contain many more articles. For this reason, a questionnaire concerning the teaching of geriatric dentistry was sent to the 10 Canadian universities having a faculty of dentistry.

An analysis of the replies bears out the concern expressed by Dr. P. Ralph Crawford, the editor of the *Journal of the Canadian Dental Association*, who concluded in his May 1991 editorial that:[1] "Canadian dentistry is certainly not moving too quickly" in the field of geriatric dentistry.

Materials and Methods

In the summer of 1991, questionnaires were mailed to the 10 Canadian universities having a faculty of dentistry. Five of the universities provided prompt responses to the questionnaire. One month after the questionnaire was sent out, telephone calls were made to the remaining five dental schools. This appeal resulted in the receipt of two more responses. A second telephone call was made to the three other schools two months later. Six months after the initial mailing, all 10 dental schools had answered the questionnaire.

The questionnaire consisted of four main questions. Each of the first three questions was divided into two parts. The first question asked the universities to indicate the type of educational activities in geriatric dentistry that took place during the 1990-1991 academic year. This question also asked whether this training was offered to undergraduate students and/or to graduate dentists.

In the second question, the universities were asked to indicate the type of teaching activity in geriatric dentistry that had been planned for the 1991-1992 academic year and, again, whether this training would be offered to undergraduate students and/or graduate dentists. The third question requested information on the geriatric dentistry activities planned by the schools for the next five academic years, for both undergraduate and graduate dentists. Finally, the fourth question asked the universities to identify the principal reasons that could prevent or stop them from organizing educational activities in geriatric dentistry in the future.

The Status of the Elderly in Canada

It is important, prior to examining the results obtained by this survey, to be aware of the actual situation of Canada's elderly population.

Demographics

The Canadian population is aging not only because of the country's declining birth rate, but also because the life expectancy of the elderly – people 65 years of age and older – is continuously increasing. In addition, by 2010, most of the children born during the baby boom years will have reached the age of 65.[2] There will be more women than men in

this elderly population.

In 1961, there were 106 women 65 years or older in Canada for every 100 men in the same age group. This ratio had increased to more than 138 women for 100 men by 1986. The spread between the number of women in the elderly population compared to the number of men also increases with advanced age. In 1986, for example, the over 85 years of age population contained twice as many women as men. This imbalance can be explained by the fact that the life expectancy of women is seven years longer than it is for men.[3]

Level of Autonomy

Among the over 65 population, there are two distinct groups. The first consists of those people who have an independent lifestyle, while the second includes individuals who are dependent on others for such things as visiting a dental office to receive routine or emergency dental care. This same trend has been observed in other industrial societies, but it is more noticeable in Canada.

The relative size of the non-working population that is being supported by people who work is changing in Canada. The ratio of dependency is defined as the ratio of the total number of people under 15 years of age plus the total number of people greater than age 65, divided by the total number of people in the working population between ages 15 and 65. It is predicted that the Canadian ratio[3] of dependency will remain relatively stable for the next two decades, at about 47 dependent persons per 100 workers. However, by 2010, when the baby boomers will have reached the age of 65, this ratio will rise sharply, reaching 67 dependent persons to each 100 workers in the year 2030. And the ratio should remain constant at this high level through to 2050, the end of the projection period.

The composition of the dependent population will change over the projection period. In 1965, only 19 per cent of dependent persons were 65 years of age or older, whereas 81 per cent were younger than 15 years. By 1987, the number of dependent persons over 65 years had reached 34 per cent, with the number of younger dependents dropping to 66 per cent. In 2030, it is anticipated that more than half (55 per cent) of dependent persons will be older than 65 years, as compared to the group under 15 years that will be reduced to 45 per cent.[3]

Consequences of an Older Population

In 40 years, the demographic composition of the Canadian population will be very different from the one that exists today. The population of elderly people (defined as 65 years of age or older) should sharply rise as Canadians born during the baby boom reach age 65 around the year 2010. In 2030, for the first time in the history of Canada, the elderly population should outnumber the under 15 years of age group, based on predictions made by the Organization for Economic Co-operation and Development (OECD).[4]

Disabled Elderly Persons

Almost half of the Canadian population over 65 years of age and eight out of 10 people over 85 years of age have some disability. The majority of these people still lead a normal life. For example, most live in their own homes and can go out and take part in leisure activities. However, an important proportion of the elderly who are disabled are severely limited in their normal daily life because of limited or inadequate resources, or due to the fact that their environment is not well suited to their particular condition. In 1986, 1.2 million elderly Canadians, 46 per cent of the total elderly population, suffered from some sort of incapacity.

The risk of becoming disabled is greater in people who are very old. In 1986, 82 per cent of Canadians over 85 years of age had some form of disability, whereas only slightly more than half (54 per cent) of the people between 75 and 84 years were disabled, and only 37 per cent of Canadians between 65 and 74 years of age were disabled. Very elderly people are the most susceptible to being afflicted with a severe incapacity. Almost half (49 per cent) of the aged population over 85 had serious disabilities, whereas 30 per cent of the aged population between 74 and 85 were disabled. By comparison, the proportion of Canadians 67 to 74 years of age with serious handicaps was 20 per cent, while only 15 per cent of those between 15 and 64 years were similarly afflicted.

Mobility and Agility

Elderly Canadians suffer most from problems of mobility or agility. In 1986, 81 per cent of the disabled elderly had some problems relating to mobility or agility. A large number of disabled Canadians (25 per cent) have difficulty using public transportation. This prevents these persons from going to the dental office if they must rely on this mode of transport.[5]

Hearing and Vision

Loss of hearing and/or failing vision often create problems for the elderly. In 1986, 43 per cent of the disabled elderly 65 years of age or older were hard of hearing and 24 per cent of them complained of visual problems.

Housing for the Aged

A majority of the disabled and partially disabled elderly population can live in their own homes. In 1986, 84 per cent lived at home and, with the exception of doing heavy housework, were able to perform their household duties unaided.

However, an important proportion of elderly people with a disability need some help to accomplish all or a large part of their daily chores. In 1986, 34 per cent of the elderly with some disability needed help to accomplish their daily routine.

A large number of disabled persons live in an institution of some sort, almost 200,000 people (16 per cent of the disabled) live in a health care establishment (60,000 in Quebec alone). As a matter of fact, 98 per cent of the elderly population over 65 who live in these institutions had some incapacity.[5]

Revenues of the Elderly

The income of elderly disabled Canadians is relatively low. In 1986, 60 per cent had a revenue less than $10,000 per year. Among the elderly with no incapacity, the proportion with such a low income was about 51 per cent. Most elderly Canadians have no dental insurance.

A Different Approach

Geriatric dentistry attempts to meet the needs of two groups of the aged: those that can transport themselves to a dental office to receive dental care and those who, because of their disabilities, cannot go to the dental office. Members of this latter group generally live in a health care institution due to a mental or physical disability.

Mentally or physically disabled elderly persons require different treatment than adults who are autonomous or independent. The dentist must demonstrate more empathy, comprehension and patience than he or she would give to the normal clientele in a dental office. In addition, to meet the needs of mentally or physically disabled elderly per-

℞ NEW NON-NARCOTIC

TORADOL®

10mg TABLETS & 30mg IM INJECTIONS (KETOROLAC TROMETHAMINE)

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

TORADOL (ketorolac tromethamine) 10 mg tablets
TORADOL IM (ketorolac tromethamine) 15 mg/mL and 30 mg/mL intramuscular injections

THERAPEUTIC CLASSIFICATION

Analgesic Agent

ACTION

Toradol (ketorolac tromethamine) is a non-steroidal anti-inflammatory drug that exhibits analgesic activity. Its mode of action is to inhibit the cyclo-oxygenase enzyme system, thereby inhibiting the synthesis of prostaglandins, and is considered to be a peripherally acting analgesic. At analgesic doses it has minimal anti-inflammatory and antipyretic activity.

Ketorolac tromethamine is rapidly and completely absorbed when administered by both the oral and intramuscular routes, and pharmacokinetics are linear following single and multiple dosing.

Steady state plasma levels are attained after one day of Q.I.D. dosing. Based only on pharmacokinetic principles, a faster attainment of the steady state plasma level might be achieved with a loading dose of about twice the maintenance dose. This occurs when the dosing interval is approximately equal to the drug's half-life.

Following oral administration, peak plasma concentrations of 0.52 to 1.31 mcg/ml occurred 35 minutes after a single 10 mg dose. The terminal plasma elimination half-life ranged between 4.1 and 6.1 hours in healthy adults, while in elderly subjects (mean age: 72 years) it ranged between 3.0 and 6.1 hours. A high fat diet decreased the rate but not the extent of absorption of oral ketorolac tromethamine, while antacid had no effect.

Following intramuscular administration, peak plasma concentrations of 2.2 to 3.0 mcg/ml occurred an average of 50 minutes after a single 30 mg dose. The terminal plasma half-life ranged between 3.8 and 6.3 hours in young adults and between 4.4 and 8.6 hours in elderly subjects (mean age: 72).

The primary route of excretion of ketorolac tromethamine and its metabolites (conjugates and the p-hydroxy metabolite) is in the urine (91.4%) and the remainder is excreted in the feces.

More than 99% of the ketorolac in plasma is protein bound over a wide concentration range.

INDICATIONS

Orally administered Toradol (ketorolac tromethamine) is indicated for the short-term management of mild to moderately severe pain, including post-surgical pain (such as general, orthopedic and dental surgery), acute musculoskeletal trauma pain and post-partum uterine cramping pain.

Intramuscular injection of Toradol is indicated for the short-term management of moderate to severe pain, including pain following major abdominal, orthopedic and gynecological operative procedures.

CONTRAINDICATIONS

Toradol (ketorolac tromethamine) should not be used where there is a known or suspected hypersensitivity to the drug. Because of the possibility of cross-sensitivity, ketorolac tromethamine should not be used in patients in whom acetylsalicylic acid (ASA) or other non-steroidal anti-inflammatory agents induce acute asthmatic attacks, urticaria, rhinitis or other allergic manifestations. Fatal anaphylactoid reactions may occur in such individuals.

Toradol (ketorolac tromethamine) also should not be used in patients with peptic ulcer or active inflammatory disease of the gastrointestinal system.

WARNINGS

Long-term administration of ketorolac tromethamine oral formulation has shown that this drug shares the risks that other non-steroidal anti-inflammatory drugs pose to patients when taken chronically. Peptic ulceration, perforation and gastrointestinal bleeding, sometimes severe and occasionally fatal have been reported during therapy with non-steroidal anti-inflammatory drugs and may occur with ketorolac tromethamine, both in the presence or absence of previous symptoms. Elderly and debilitated individuals are most susceptible to these complications, the incidence of which increases with dose and duration of treatment. Close medical supervision is recommended in patients prone to gastrointestinal tract irritation, particularly those with a history of peptic ulcer, diverticulosis or other inflammatory disease of the gastrointestinal tract. In these cases the physician must weigh the benefits of treatment against the possible hazards.

Patients taking any non-steroidal anti-inflammatory drug including ketorolac tromethamine should be instructed to contact a physician immediately if they experience symptoms or signs suggestive of peptic ulceration or gastrointestinal bleeding. These reactions can occur at any time during the treatment. If peptic ulceration is suspected or confirmed, or if gastrointestinal bleeding occurs, ketorolac tromethamine should be discontinued and appropriate treatment instituted and the patient closely monitored.

Ketorolac tromethamine is not recommended for routine use with other non-steroidal anti-inflammatory drugs because of the potential for additive side effects.

Use in pregnancy, lactation and labour: The administration of ketorolac tromethamine is not recommended during pregnancy or lactation.

Ketorolac tromethamine is not recommended for use as an obstetrical preoperative medication or for obstetrical analgesia because of the known effects of non-steroidal anti-inflammatory drugs on uterine contraction and fetal circulation.

Use in children: Safety and efficacy in children have not been established. Therefore, Toradol is not recommended for use in children under age 16.

Use in the elderly: Because ketorolac is cleared somewhat more slowly by the elderly (See PHARMACOKINETICS) who are also more sensitive to the renal effects of non-steroidal anti-inflammatory drugs, extra caution and the lowest effective dose should be used.

PRECAUTIONS

Renal effects: As with other drugs that inhibit prostaglandin biosynthesis, elevations of blood urea nitrogen (BUN) and creatinine have been reported in clinical trials with ketorolac tromethamine. Since ketorolac tromethamine and its metabolites are excreted primarily by the kidney, patients with significant impairment of renal function (serum creatinine values greater than 5 mg/dL) should not receive ketorolac tromethamine unless the expected benefits outweigh the risks. In patients with moderately impaired renal function serum creatinine values ranging from 1.9 to 5.0 mg/dL, the rate of ketorolac clearance was reduced to approximately half of normal. The total daily dose of ketorolac tromethamine should be reduced by half in such patients. The disposition of ketorolac in dialysis patients has not been studied.

Patients who are volume depleted because of blood loss or severe dehydration may be dependent on renal prostaglandin production to maintain renal perfusion and therefore glomerular filtration rate. In such situations the use of drugs which inhibit prostaglandin synthesis might be expected to further decrease renal blood flow. Caution is advised if ketorolac tromethamine is used in such circumstances. Close monitoring of urine output, serum urea and serum creatinine is recommended until the patient is normovolemic.

Hepatic effects: Meaningful elevations (greater than 3 times normal) of serum transaminases (glutamate pyruvate (SGPT or ALT) and glutamic oxalacetic (SGOT or AST)) occurred in controlled clinical trials in less than 1% of patients. If clinical signs and symptoms consistent with liver disease develop, or if systemic manifestations occur (e.g., eosinophilia, rash, etc.), ketorolac tromethamine should be discontinued. Patients with impaired hepatic function from cirrhosis do not have any clinically important changes in ketorolac tromethamine clearance. Studies in patients with active hepatitis or cholestasis have not been performed.

Fluid and electrolyte balance: Fluid retention and edema have been observed in patients treated with Toradol. Therefore, as with many other non-steroidal anti-inflammatory drugs, the possibility of precipitating congestive heart failure in elderly patients or those with compromised cardiac function should be borne in mind. Toradol should be used with caution in patients with cardiac decompensation, hypertension or other conditions predisposing to fluid retention.

Hematologic effects: Ketorolac tromethamine inhibits platelet function and may prolong bleeding time. It does not affect platelet count, prothrombin time (PT) or partial thromboplastin time (PTT). Patients who have coagulation disorders or are receiving drug therapy that interferes with hemostasis should be carefully observed when ketorolac tromethamine is administered. Unlike the prolonged effects from aspirin, the inhibition of platelet function by ketorolac tromethamine is normalized within 24 to 48 hours after the drug is discontinued.

Blood dyscrasias associated with the use of non-steroidal anti-inflammatory drugs are rare, but could occur with severe consequences.

Infection: In common with other anti-inflammatory drugs, ketorolac tromethamine may mask the usual signs of infection.

Drug Interactions: Toradol (ketorolac tromethamine) is highly bound to human plasma protein (mean 99.2%) and binding is independent of concentration.

Prothrombin time should be carefully monitored in all patients receiving oral anticoagulant therapy concomitantly with ketorolac tromethamine.

Ketorolac tromethamine does not alter digoxin protein binding.

In vitro studies indicated that at therapeutic concentrations of salicylates (300 mcg/mL), the binding of ketorolac tromethamine was reduced from approximately 99.2% to 97.5%. Therapeutic concentrations of digoxin, warfarin, acetaminophen, phenytoin, tolbutamide and piroxicam did not alter ketorolac tromethamine protein binding. Since ketorolac tromethamine is a highly potent drug and present in low concentrations in plasma, it would not be expected to displace other protein-bound drugs significantly.

There is no evidence in animal or human studies that ketorolac tromethamine induces or inhibits the hepatic enzymes capable of metabolizing itself or other drugs. Hence, it would not be expected to alter the pharmacokinetics of other drugs due to enzyme induction or inhibition mechanisms.

Ketorolac tromethamine mildly reduces the diuretic response to furosemide in normovolemic subjects. Inhibition of renal lithium clearance leading to an increase in plasma lithium concentration and potential lithium toxicity has been reported with some non-steroidal anti-inflammatory drugs. The effect of ketorolac tromethamine on lithium plasma levels has not been studied.

Concomitant administration of methotrexate and some non-steroidal anti-inflammatory drugs have been reported to reduce the clearance of methotrexate, enhancing the toxicity of methotrexate. The effect of ketorolac tromethamine on methotrexate clearance has not been studied

There is limited experience on concurrent administration with morphine. Available information shows no evidence of adverse interactions. The extent of a possible narcotic-sparing effect of ketorolac tromethamine is currently under investigation.

ADVERSE EFFECTS

Toradol tablets: The incidence of adverse reactions in approximately 600 patients and subjects receiving short-term oral therapy (less than 2 weeks) with Toradol (ketorolac tromethamine) are listed below. The most common adverse effects include: Gastrointestinal: dyspepsia (2%), gastrointestinal pain (2%), nausea (2%). Central nervous system: headache (2%), dizziness (2%).

The following adverse events are rare but have been reported (less than 1%): Gastrointestinal: flatulence, gastritis. Respiratory: dyspnea. Dermatologic: urticaria, rash, pruritus. Metabolism/nutritional: edema. Body as a whole: asthenia Hemic and lymphatic: purpura. Musculoskeletal: myalgia.

Toradol IM: The adverse reactions listed below were reported to be probably related to Toradol IM in clinical trials in which patients received up to 20 doses of 30 mg of intramuscularly administered Toradol over a period of up to five days

Incidence between 3 and 9%: Gastrointestinal: nausea, dyspepsia, gastrointestinal pain. Central nervous system: drowsiness

Incidence between 1 and 3%: Gastrointestinal: diarrhea. Central nervous system: dizziness, headache, sweating. Body as a whole: edema. Injection site pain was reported by 2% of patients in multi-dose studies (vs. 5% for morphine control group)

Incidence 1% or less: Gastrointestinal: constipation, flatulence, gastrointestinal fullness, liver function abnormalities, melena, peptic ulcer, rectal bleeding, stomatitis, vomiting. Body as a whole: asthenia, myalgia. Cardiovascular: vasodilatation, pallor. Hemic and lymphatic: purpura. Nervous system: dry mouth, nervousness, paresthesia, abnormal thinking, depression, euphoria, excessive thirst, inability to concentrate, insomnia, stimulation, vertigo. Respiratory: dyspnea, asthma. Urogenital: increased urinary frequency, oliguria. Dermatologic: pruritus, urticaria. Special senses: abnormal taste, abnormal vision.

OVERDOSAGE

The absence of experience with acute overdosage precludes characterization of sequelae and assessment of antidotal efficacy at this time. In a gastroscopic study of healthy subjects, daily doses of 360 mg given over an 8-hour interval for each of five consecutive days (3 times the highest recommended dose) caused abdominal pain and peptic ulcers which recovered after discontinuation of dosing.

DOSAGE AND ADMINISTRATION

Adults: Dosage should be adjusted according to the severity of the pain and the response of the patient.

Oral: The usual oral dose of Toradol (ketorolac tromethamine) is 10 mg every 4 to 6 hours for pain as required. Doses exceeding 40 mg per day are not recommended.

Toradol is recommended for short-term use only i.e. for a maximum of a few weeks

Parenteral: The recommended usual initial dose is 30 mg. Subsequent dosing may be 10 mg to 30 mg every 4-6 hours as needed to control pain. A lower initial dose may be suitable for patients under 50 kg in body weight, over age 65 years and/or with less severe pain at baseline. In the initial post-operative period, more frequent dosing (e.g., every 2 hours) may be employed, but the total daily dose should not exceed 120 mg. Dose above 120 mg could cause drug toxicity (see Warnings & Precautions). If supplemental analgesia is required, a concomitant low dose of opiate can be used.

The administration of continuous multiple daily doses of Toradol IM should not exceed 5 days for injection dosing. There has been limited experience with dosing for more than 5 days since the vast majority of patients have transferred to oral medication or no longer required analgesic therapy after this time.

Directions for use: Insert the plunger into the syringe barrel and thread it onto the screw. WITHOUT REMOVING THE NEEDLE GUARD, apply quick, firm pressure to the plunger to break the inner seal (you will feel it let go). Pull back on the plunger slightly to relieve pressure. Remove the needle guard by twisting as you pull. Use the unit as you would a normal syringe. Dispose of properly.

CONVERSION FROM PARENTERAL TO ORAL THERAPY

Toradol tablets may be used either as monotherapy or as follow-on therapy to parenteral ketorolac. In the latter case, the total combined daily dose of ketorolac should not exceed 120 mg on the day the change of formulation is made; this includes a maximum of 4 of the 10 mg tablets.

Toradol (ketorolac tromethamine) is a Schedule F drug.

COMPOSITION

Toradol Tablets: Each Toradol tablet contains ketorolac tromethamine, the active ingredient, with microcrystalline cellulose, lactose and magnesium stearate. The coating suspension contains hydroxy-propyl-methylcellulose, titanium dioxide and polyethylene glycol.

Toradol IM: Toradol IM is available for intramuscular administration as: 15 mg in 1 mL (1.5%), or 30 mg in 1 mL (3%) of ketorolac tromethamine in sterile solution. The 15 mg/mL solution contains 10% (w/v) alcohol, USP, and 6.68 mg sodium chloride in sterile water. The 30 mg/mL solution contains 10% (w/v) alcohol, USP and 4.35 mg sodium chloride in sterile water. The pH is adjusted with sodium hydroxide or hydrochloric acid. The sterile solutions are clear and slightly yellow in colour.

STABILITY AND STORAGE RECOMMENDATIONS

Toradol Tablets: Store at room temperature. The blister package tablets should be protected from light

Toradol IM: Store at room temperature with protection from light.

AVAILABILITY OF DOSAGE FORMS

Toradol (ketorolac tromethamine) is available as 10 mg white round film coated tablets with one side printed in red with TORADOL inside a bold T and the other side with Syntex. Toradol (ketorolac tromethamine) 10 mg tablets are available in bottles of 100 and 500 tablets.

Toradol IM is available in 1 mL syringes containing 15 or 30 mg/mL of ketorolac tromethamine

Product Monograph available on request.

REFERENCES

1. TORADOL Product Monograph, Syntex Inc., Feb. 1991. **2.** Compendium of Pharmaceuticals and Specialties, 26th Edition, 1991. **3.** Yee JP et al. *Pharmacother* 1986; 6(5):253-61. **4.** Brown CR et al. *Pharmacother* 1990; 10(6 Pt 2):45S-49S. **5.** O'Hara DA et al. *Clin Pharm Ther* 1987; 41(5)556-61. **6.** Fragen RJ. Data on File, Syntex Inc., Document CL3837, 1987. **7.** Cherry C et al. Data on File, Syntex Inc., Document CL3835, 1987. **8.** Stanski DR et al. *Pharmacother* 1990; 10(6 Pt 2) 40S-44S. **9.** Data on File, Syntex Inc., Document #90027-1, 1989. **10.** Forbes JA et al. *Pharmacother* 1990; 10(6 Pt 2): 77S-93S. **11.** Forbes JA et al. *Pharmacother* 1990; 10(6 Pt 2): 94S-105S. **12.** Mehlisch D et al., Data on File, Syntex Inc., Document CL3686. **13.** Data on File, Syntex Inc., Document #90027-3, 1989. **14.** Rooks II WH et al. *Pharmacother* 1990; 10(6 Pt 2): 30S-32S. **15.** Mangioni C et al. Data on File, Syntex Inc., Document CL4899, 1989. **16.** Hutteman W et al. Data on File, Syntex Inc., Document CL4882, 1989. **17.** Nedelman P et al. Data on File, Syntex Inc., Document CL3635, 1986. **18.** Cutting CJ et al. Data on File, Syntex Inc., Document CL4740, 1989. **19.** Diebschlag W, Nocker W, Data on File, Syntex Inc., Document CL5468, 1989. **20.** Molinie J et al. Data on File, Syntex Inc., Document CL4624, 1988. **21.** Herrera JMC et al. Data on File, Syntex Inc., Document CL4886, 1989. **22.** Bloomfield S et al. Data on File, Syntex Inc., Document CL3658, 1986. **23.** Sunshine A. Data on File, Syntex Inc., Document CL3674, 1986.

Toll-free Toradol Information Hotline: 1-800-561-5481.

SYNTEX®

Syntex Inc.* Mississauga, Ont./Montréal (Qué.)
*Registered user of all ® trademarks.

PAAB CCPP MEMBER PMAC

Upjohn®

The Upjohn Company of Canada
Don Mills, Ontario

sons, the dentist must understand their particular needs. This knowledge can be acquired by taking specific courses in geriatric dentistry.

Presently, the Canadian dental profession is experiencing some problems due to the general reduction in the dental caries rate among young people. In addition, the present economic climate has caused many individuals who do not have dental insurance to avoid seeking treatment. Priorities change when budgetary reductions occur, and the demand for dental care becomes less important when no dental pain is felt. The time is right for the dental profession to look at our senior citizens as a source of new patients. Many of these individuals have important, unfilled dental health care needs.[6]

However, the dentist who wishes to treat this ever-increasing population group must acquire specific training, so that he or she will be able to provide quality dental care to these elderly people either in the dental office or in a nursing institution. Special techniques are often required because these patients are sometimes bedridden or in a wheelchair.

Status of the Teaching of Geriatric Dentistry in Canada

Results of the Survey

In June 1991, the 10 Canadian universities with dental schools were mailed a questionnaire on the teaching of geriatric dentistry in Canada. All had responded to the questions by December 1991.

In response to the question on the types of geriatric dentistry courses each faculty offered to undergraduate students during the 1990-91 academic year, eight out of 10 dental schools described the courses given. The majority (seven out of 10) stated that this teaching forms an integral part of their curriculum, but does not comprise a separate course or courses. Only clinical experience was mentioned by the remaining three schools.

Where geriatric dentistry training for graduate dentists was concerned, three dental schools reported that they offer some post-graduate didactic courses without a practical component, two others offer lectures without any clinical component and one has some clinical involvement as part of a residency program, but no didactic program. When this survey was taken in June 1991, no single dental school offered both aspects of the teaching of geriatric dentistry, namely theory and practice. However, during the period between the survey and the present, the faculty of dentistry at McGill University in Montreal offered a bilingual training program in geriatric dentistry to graduate dentists. The course, which took place in the fall of 1991, consisted of 45 hours of lectures followed by 20 hours of clinical training.

In response to the second question, which asked the universities to indicate what teaching activities in geriatric dentistry are planned for the academic year 1991-1992, the dental schools (eight out of 10) that offer some courses in geriatric dentistry to undergraduate students planned to continue offering these courses, but without any increase in the time allotted to lectures or clinical training. Only one faculty indicated that it planned to offer a program to meet the needs of graduate dentists during this academic year.

The third question asked the schools to indicate the types of geriatric dentistry teaching programs that were planned for the next five academic years. For undergraduate students, all the dental schools (eight out of 10) that presently have courses will continue them and, in certain cases, three of the 10 schools will increase this exposure both in lecture time and especially in the clinical component. However, there are few projects planned for graduate dentists, and it appears that the universities typically don't make decisions on geriatric dentistry training on a long-term basis.

The last question asked the schools to identify the main reason that would cause the organization of their geriatric dentistry teaching programs to be hampered or discontinued. A choice of answers were offered, which is listed below:

- an overloaded or crowded curriculum
- lack of trained teachers in the field
- financial considerations
- administrative considerations
- other

Half (five of 10 schools) of the respondents selected the first reason, an overloaded curriculum. Four out of 10 chose the second option (lack of trained teachers) and three selected financial considerations. Only one school selected the fourth option, administrative considerations. The comments received under the "other" option are quite revealing. One institution said that despite the advanced age of some patients, there is no difference in treatment modalities between an elderly patient and an average adult patient. Another school pointed out that there was little, if any, interest on the part of the local profession for continuing education courses on this subject. It was also mentioned that there is very little help offered from the traditional dental disciplines, as staff believe that there are no differences when treating a geriatric patient as compared to a younger patient. One dental school stated that while it allotted no specific time to teaching geriatric dentistry, much of the information was provided in its physiology and prosthetics classes. Finally, one dental school said that it had much higher priorities than geriatric dentistry.

Discussion

Based on the replies to the questionnaire, it can be stated that the teaching of geriatric dentistry is not perceived in the same manner by the 10 Canadian dental faculties. There is no uniformity in this teaching area, regardless of whether training is directed at undergraduate or graduate dentists. Certain faculties give considerable importance to geriatric dentistry, whereas others do not even consider it in their long-range plans at all.

It is obvious that the elderly population will increase considerably in the immediate future, and it is important that future dentists are able to treat this group of patients. A part of this population (six per cent) have physical or psychological disabilities. These individuals also need dental care. How will these people receive emergency or even routine dental care if most Canadian dentists are not trained to treat them? How will the dentist provide the best possible dental care to patients who are confined to their home or in a nursing establishment?

There is no question that providing geriatric dentistry to patients who are in good health and can go to the dental office for treatment is very similar to providing dentistry to the rest of the adult population. This aspect of geriatric dentistry will eventually be covered by an adaptation of the lectures and clinical experience given to the undergraduate students in Canadian dental schools.

However, more training must be made available to those dentists wishing to provide care to elderly patients

who are physically or mentally disabled (there are 60,000 in Quebec alone), many of whom are institutionalized. These individuals generally require a different level of services, often in less than adequate physical surroundings. Such training should be provided either through continuing education programs for graduate dentists, or through geriatric residency programs for those who wish to become the future teachers in this discipline.

It is not necessary for all dentists to receive training in geriatric dentistry, since the number of dentists required to meet the needs of the physically and mentally disabled population is relatively small. However, a mandatory initiation to geriatric dentistry should be given to all undergraduate dental students to make them aware of the needs of this special group of patients. Those students who elect to serve the elderly, disabled population should be able to take more specialized courses and geriatric residency programs, which will allow them to pursue teaching and research activities in this field.

Conclusions

Based on the results of the survey, education in geriatric dentistry in Canada will continue to flounder and lag behind the training offered in the United States, unless Canadian dental schools take action to remedy this situation. Unfortunately, this study has confirmed that geriatric dentistry does not occupy a high priority in many Canadian dental schools. ■

Dr. Jean-Robert Vincent *is director of the preventive dentistry service of the department of community health at Verdun Hospital and a lecturer in the department of oral health at the Faculté de médecine dentaire of l'Université de Montréal. He is also a lecturer in the continuing education section of the faculty of dentistry at McGill University.*

Dr. Paul Massicotte *is a member of the Preventive Dental Service of the department of community health at Verdun Hospital and is presently enroled in a masters program in community health (dental option) at l'Université de Montréal.*

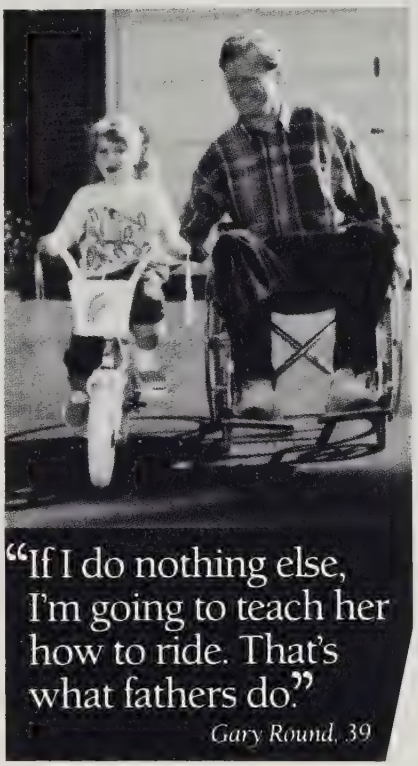
Dr. Ralph Y. Barolet *is professor and dean of the faculty of dentistry of McGill University.*

Acknowledgements: *The authors wish to thank* **Dr. Marcel Tenenbaum** *for translating the questionnaire from French to English and for having made the necessary contacts with the dental faculties involved to ensure a 100 per cent response to the survey.*

Requests for reprints should be directed to: **Dr. J.R. Vincent,** *Département de santé communautaire, Centre hospitalier de Verdun, 4000, boul. Lasalle, Verdun (Québec), Canada H4G 2A3.*

References

1. Crawford, P.R. Geriatric Dentistry: Are We Moving Too Quickly (Editorial). *J Canad Dent Assoc* 57(5): 343-344, 1991.
2. Chalwa, R. Dependency Ratios. *Canadian Social Trends*, Statistics Canada, No. 20, spring 1991, p. 3.
3. Demographics. *Canada Year Book*, 1990, pp. 2-6.
4. Burke, M.A. Implications of an Aging Society. *Canadian Social Trends*, Statistics Canada, spring 1991, p. 6.
5. Dunn, P.A. Seniors with Disabilities. *Canadian Social Trends*, Statistics Canada, spring 1991, pp. 14-16.
6. Simard, P.L., Brodeur, J.M., Kandelman, D. et al. Conclusion sur l'étude sur la santé bucco-dentaire des Québecois de 65 ans et plus. *J Dent Qué* 20(3):7-9, 1983.



As far as Heather is concerned, her dad is no different than anyone else's. And he's not. Except that, like tens of thousands of Canadians, Gary has multiple sclerosis.
Become a volunteer. Make a donation. Together, we'll find a way to stop multiple sclerosis.

CONTACT US TODAY!

Multiple Sclerosis
SOCIETY OF CANADA
250 Bloor Street East, Suite 820,
Toronto, Ontario M4W 3P9

SERVICES • RESEARCH • EDUCATION

SOCIAL ACTION • FUNDRAISING • VOLUNTEERS

℞ **Tantum** Oral rinse TM
(Benzydamine HCl Solution)

Prescription relief of oral pain and inflammation.

Summary of prescribing information

THERAPEUTIC CLASSIFICATION
Topical Analgesic — Anti-Inflammatory

Action
Animal studies using the parenteral route have shown that "Tantum" Oral Rinse possesses properties of an analgesic—anti-inflammatory agent. This effect is not mediated through the pituitary-adrenal axis. Studies using the topical route have demonstrated the local anesthetic properties of benzydamine hydrochloride. In controlled studies in humans with oro-pharyngeal mucosity due to radiation therapy, "Tantum" Oral Rinse provides relief through reduction of pain and edema. Similar studies in patients with acute sore throat demonstrated relief from pain.

Indications
"Tantum" Oral Rinse is indicated for relief of pain in acute sore throat and for the symptomatic relief of oro-pharyngeal mucositis caused by radiation therapy.

Contraindications
"Tantum" Oral Rinse is contraindicated in subjects with a history of hypersensitivity to any of its components.

Precautions
The use of undiluted "Tantum" Oral Rinse may produce local irritation manifested by burning sensation in patients with mucosal defects. If necessary, it may be diluted (1:1) with lukewarm water. Since "Tantum" Oral Rinse is absorbed from the oral mucosa and excreted mostly unchanged in the urine, a possibility of its systemic action has to be considered in patients with renal impairment.

Use In Pregnancy
The safety of benzydamine HCl has not been established in pregnant patients. Risk to benefit ratio should be established if "Tantum" is to be used in these patients.

Use in Children
Safety and dose directions have not been established for children five years of age and younger.

Adverse Reactions
The most frequent adverse reactions reported are: local numbness (9.7%), local burning or stinging sensation (8.2%), nausea and/or vomiting (2.1%). The least frequent were reports of throat irritation, cough, dryness of the mouth associated with thirst, drowsiness and headache.

Treatment of Overdosage
There are no known cases of overdosage with benzydamine HCl gargle. Since no specific antidote for benzydamine is available, cases of excessive ingestion of the liquid should receive supportive symptomatic treatment aimed at rapid elimination of the drug.

Dosage and Administration
Acute sore throat: Gargle with 15 ml every 1 1/2 to 3 hours keeping in contact with the inflamed mucosa for at least 30 seconds. Expel from the mouth after use.

Radiation Mucositis: Use 15 ml as a gargle or rinse repeated 3-4 times a day, keeping in contact with the inflamed mucosa for at least 30 seconds and then expel from the mouth. Begin "Tantum" Oral Rinse the day prior to initial radiation therapy; continue daily during the treatment and after cessation of radiation until the desired improvement is obtained.

Availability
Tantum Oral Rinse is available in 100 and 250 ml bottles. "Tantum" Oral Rinse is a clear yellow-green liquid containing 0.15% benzydamine hydrochloride in a pleasant-tasting aqueous vehicle with 10% ethanol.

Product monograph is available on request.

References:
1. Simard-Savoie S and Forest D. *Curr Ther Res* 1978;23(6):734-45.
2. Whiteside MW. *Curr Med Res Opin* 1982;8:188-9.
3. Wethington JF. *Clin Ther* 1985;7(5):641-6.
4. Product monograph.
5. Yankell SL. Evaluation of benzydamine HCl in patients with aphthous ulcers. *The Compendium of Continuing Education* 1981; II(1).
6. Epstein JB. *Int J Radiation Oncology Biol Phys* 1989;16(6):1571-5.

PAAB CCPP

3M Pharmaceuticals
3M Canada Inc.
Post Office Box 5757
London, Ontario N6A 4T1

3M

CDA FACT SHEETS

25% Discount for CDA Members

Essential Information at an Exceptional Price

"How do I prevent gum disease?"
"Am I brushing properly?"
"How do I care for my child's teeth?"

Your patients have plenty of questions. CDA's Fact Sheets help you deliver the answers.

This series of 10 fact sheets is a simple, effective, and inexpensive way to provide vital dental health information to your patients. They're factual, to the point, and easy to read. And they deliver essential information in a convenient and lively way.

Each 8 1/2" X 11" fact sheet comes in a handy tear-off pad of 100 sheets. As little as 6¢ per patient!

1. Don't Wait till It Hurts Too many people still treat the dentist like the fire department. They only call if there's an emergency. This fact sheet highlights the importance of regular dental visits. It explains that the dentist can solve small problems before they become big ones, and provide the professional care needed to maintain a healthy mouth.

2. Advice for Parents Even though they eventually fall out, baby teeth pave the way for healthy adult teeth. This fact sheet provides parents with helpful advice on how to care for their children's teeth. Tips include brushing techniques, sensible snacks, and how to prepare for a child's first dental visit.

3. Changing Your Dental Habits Old habits die hard! – and they can seriously compromise your patients' dental health. Brushing too fast, rarely flossing, and eating the wrong kinds of foods are the most common bad dental health habits. This fact sheet provides helpful tips on how to change them.

4. Managing a Sweet Tooth A dental health quiz on sugar! Can your patients answer it correctly? Everyone knows that sugary foods can be harmful to your dental health. The surprise is that the kind of sugar you eat and when you eat it is crucial to maintaining good dental health.

5. Facts about Dental Health Hardhitting facts about dental health. Topics covered include: the prevalence of dental disease, its consequences and how to prevent it, the benefits of fluoride, and dentalphobia.

6. Tips for Tooth Troubles If your patients know what to do in a dental emergency, it can save them anguish and permanent damage.This fact sheet discusses some of the most common dental emergencies and how to handle them.

See sample reverse side.

7. How to Talk to Your Dentist Here's a vital message for your patients: Don't just sit there, speak up. This fact sheet aims to make patient/dentist communication easier. It provides patients with questions they can ask about their own dental health. From general dental health queries to interests in cosmetic procedures to dental anxiety – it tells patients that the dentist is ready and willing to provide advice.

8. Gum Disease: Why Your Teeth Need Support Nine out of every ten Canadians will develop gum disease at one point in their adult lives. And most adult Canadians don't know anything about it! Vital information about gum disease — how it happens, warning signs, and preventive tips — is presented in a straightforward, easy-to-understand manner.

9. Growing up: How Your Dental Needs Change This fact sheet discusses the dental health issues that affect people at each stage of life, from toddlers to adults to everyone in between. Your patients will find information explaining what they should be aware of now and in the future.

10. How to Choose a Dentist It's worth spending time to find the right dentist. This fact sheet provides a few suggestions to help patients find and evaluate a dentist.

CDA Member Price $5.98 Regular Price $7.98

Order yours today!
Call the CDA toll-free at 1-800-267-6354.
Or complete and mail the order form below.

CDA PRODUCTS
The Right Stuff . . . Right Now.

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

Complete and mail to: The Canadian Dental Association, Order Section, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

Name _____
Address _____
City/Town _____ Province _____
Postal Code _____ Telephone ( ) _____
CDA Membership # _____
Cheque/Money Order Enclosed ☐ Visa ☐ MasterCard ☐
Credit Card # _____
Expiry Date _____
Signature _____

Item (Pads of 100 Sheets)	Quantity
1. Don't Wait till It Hurts	
2. Advice for Parents	
3. Changing Your Dental Habits	
4. Managing a Sweet Tooth	
5. Facts about Dental Health	
6. Tips for Tooth Troubles	
7. How to Talk to Your Dentist	
8. Gum Disease: Why Your Teeth Need Support	
9. Growing up: How Your Dental Needs Change	
10. How to Choose a Dentist	

Fact Sheets Pads:	
Cost: _____ pad(s) X price /pad	
Member Price: $5.98/pad of 100 sheets	
Regular Price: $7.98/pad of 100 sheets	
Total Order	$
Shipping	$
Subtotal (Total Order + Shipping)	$
Add 7% GST (#R106845209) to Subtotal	$
Ontario Residents add 8% PST to Subtotal	$
Grand Total	$

Shipping and handling: All orders will be sent by mail with prepaid shipping charges as follows: Orders under $30.00=$4.50; $30.00 to $99.99=$7.00; $100.00 to $250.00=$11.50; over $250.00 call our toll-free number for applicable charges. Allow 4 – 6 weeks for delivery. Make cheque or money order payable to: Canadian Dental Association. Payment must accompany order.

FACT SHEET

DENTAL HEALTH
LET'S KEEP IT *Good For Life*™
CANADIAN DENTAL ASSOCIATION

ADVICE FOR PARENTS

Baby teeth are important. Even though they eventually fall out, baby teeth pave the way for healthy adult teeth. If they are prematurely lost or diseased, adult teeth can grow in crooked, deformed, or not at all. As well, children need good teeth in order to learn to speak correctly. Moreover, it's in childhood that positive dental care habits are formed – the habits of brushing and flossing, healthy eating and of regular visits to the dentist. Studies show that most adults who are anxious today about going to the dentist developed their fears as children.

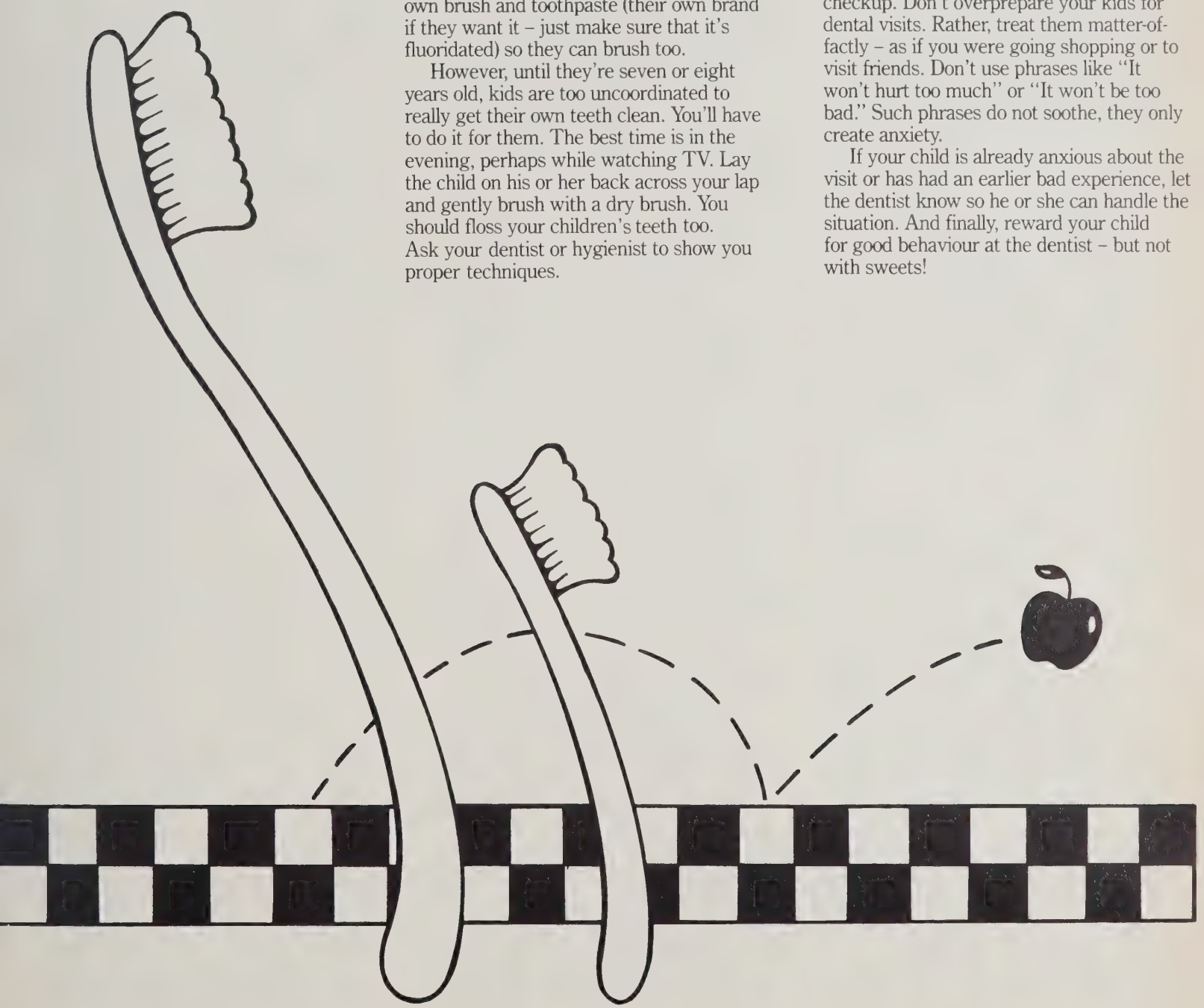
Learning to clean their teeth is a gradual process for children. Let your kids watch you brushing. Give them their very own brush and toothpaste (their own brand if they want it – just make sure that it's fluoridated) so they can brush too.

However, until they're seven or eight years old, kids are too uncoordinated to really get their own teeth clean. You'll have to do it for them. The best time is in the evening, perhaps while watching TV. Lay the child on his or her back across your lap and gently brush with a dry brush. You should floss your children's teeth too. Ask your dentist or hygienist to show you proper techniques.

Sensible, healthy snacks, readily available, will forestall the habit, all too common among children and adults alike, of munching on sweet and sugary foods between meals. Cut-up fruits and vegetables are ideal. Kids will take to them if they are on hand, waiting in the fridge.

At the dentist: Find a dentist who enjoys and knows how to treat children. If your own dentist doesn't like to treat kids, ask him or her to recommend one that does. Your child's first visit to the dentist should be at 2-1/2 to 3-1/2 years of age. Don't wait for an emergency for the first visit – that might be traumatic. Rather, go in for a casual, friendly, get-acquainted visit and checkup. Don't overprepare your kids for dental visits. Rather, treat them matter-of-factly – as if you were going shopping or to visit friends. Don't use phrases like "It won't hurt too much" or "It won't be too bad." Such phrases do not soothe, they only create anxiety.

If your child is already anxious about the visit or has had an earlier bad experience, let the dentist know so he or she can handle the situation. And finally, reward your child for good behaviour at the dentist – but not with sweets!



Nutritional deficiencies and gastrointestinal disorders in the edentulous elderly: A literature review

Danielle Laurin, PDt, M.Sc.
Jean-Marc Brodeur, DDS, PhD
Nicole Leduc, PDt, PhD
Montreal

Josée Bourdages, PDt, M.Sc.
Diane Lachapelle, DH, M.Sc.
Roland Vallée, *DDS*
Québec

ABSTRACT

Many factors influence the food selection and nutritional status of elderly individuals. In this brief review, it is hypothesized that the functional status of dental prostheses is a prime determinant in the food selection, dietary fibre intake and prevalence of gastrointestinal disorders in edentulous elderly subjects.

SOMMAIRE

Plusieurs facteurs influent sur la sélection alimentaire et conséquemment, sur l'état nutritionel des personnes âgées. Cette brève revue de la littérature porte sur l'hypothèse que l'état fonctionnel des prothèses dentaires constitue un facteur déterminant dans la sélection alimentaire, la consommation de fibres ainsi que sur la prévalence de problèmes gastro-intestinaux chez les personnes âgées édentées.

Introduction

The loss of teeth has been associated with a suboptimal intake of nutrients and with shifts in food selection.[1] These phenomena also occur in the presence of dental prostheses.[2] In fact, it has been observed that individuals with dentures have just one-sixth of the chewing efficiency of persons with a full set of teeth.[3] People with poor dentition tend to consume soft, easily chewed foods that are low in fibre and have a low nutrient density.[4-6] The nutrients most affected by this diet include vitamin A precursors, vitamin C, folic acid, iron and dietary fibre.[7] An understanding of the factors that influence dietary intake would improve the dental practitioner's ability to help elderly patients achieve better oral health.[8]

Nutritional deficiencies are thought to be associated with impaired immune responses, especially in elderly individuals.[9] The elderly are the fastest growing age group in most industrialized societies, and typically request the most health care services.[9,10] From a nutritional standpoint, the elderly are considered to be at high risk for illness because they undergo a gradual depletion of organic reserves and have lower energy intakes. These progressive reductions in available energy are mainly attributable to the decline in both basal metabolic rate and physical activity that occurs with advancing age.[11] However, the recommended amounts of essential nutrients required by the elderly have remained essentially unchanged.[12] The partial or total lack of a specific nutrient in the diet induces the development of a nutritional deficiency. Therefore, the elderly must choose every food component of their diet judiciously in order to meet all of their nutritional requirements. However, many factors adversely affect the dietary selection of these individuals, including their oral health and dental status, which are frequently forgotten. This brief review will focus on the hypothesis that the functional status of dental prostheses is a prime determinant in food selection, dietary fibre intake and, possibly, of the prevalence of gastrointestinal disorders in edentulous elderly subjects.

Physiologic Factors

Many physiologic functions decline with age. The alterations associated with this phenomenon include decreased secretion of pepsin, intrinsic factor and hydrochloric acid.[13] There may be a reduced synthesis and secretion of some pancreatic digestive enzymes as well.[8,13] Reduced gastric motility, delayed emptying of the stomach and decreased hunger contractions also occur with aging. These gradual changes, which are primarily accounted for by altered peristaltic motility and loss of muscle tone in the stomach, sometimes lead to chronic constipation.[8] Elderly people could, therefore, deliberately avoid specific foods in their regular diet.

Pharmacological Factors

Elderly individuals are often on multiple drug regimens, which occasionally has a negative impact on their nutritional status.[14] Due to the normal decline of physiologic functions in the elderly, they are more predisposed to have adverse reactions to medications. A number of drugs depress appetite, diminish salivary flow, or affect taste and smell acuity – two of the main senses in the eating process. Interferences in the absorption, distribution, metabolism and excretion of specific nutrients have often been reported as well. Hence, the levels of fat-soluble vitamins (A, D, E and K), vitamins B6, B12, folic acid, iron and calcium are likely to be affected by medications.[15] Therefore, pharmacological treatment in the elderly should only be instituted following comprehensive dental and medical examinations.[16]

Gastrointestinal Disorders

The elderly are more prone to disturbances of the gastrointestinal tract, and approximately 27 per cent of geriatric admissions are attributed to digestive diseases.[17] Forty-two per cent of the over-the-counter medications now available are for the treatment of gastrointestinal problems.

Dental status has been reported to be of considerable importance in food selection and, ultimately, nutritional status.[15] Furthermore, some investigations[15;18-20] have revealed a possible link between gastrointestinal disorders and inadequate chewing. Osterberg and Steen[21] observed that insufficient intakes of specific nutrients were significantly related to the degree of dental

invalidity – especially in women, where social factors seemed to be of more consequence. In addition, several studies by Baxter[22] have reported that the nutritional status of elderly women is more at risk relative to the nutritional status of elderly men.

The available evidence suggests that there is a relationship between fibre intake and the maintenance of gastrointestinal function.[23] In young subjects, the vigorous peristaltic action of the gut and a high level of physical activity ensure a good sweeping action by fibre-containing foods.[24] This allows for the optimal functioning of the intestinal tract. However, these activities decline with advancing age, and explain why the dietary fibre content is a major contributor to intestinal health. Poor mastication is particularly important to humans when their normal digestive capacity is impaired, as is the case in the elderly.[7]

The Canadian Expert Advisory Committee on Dietary Fibre[25] recommends an increased consumption of fibre-containing food for the treatment or prevention of a range of intestinal disturbances. High fibre cereals would be the foods most likely to increase fecal excretion. Insoluble fibre contributes to the regulation of the colon by increasing fecal bulk and decreasing transit time. Fruit and vegetable fibres contribute to increasing the undegraded fibre residue, microbial mass and, consequently, fecal volume.[26] Cummings et al[27] reported that a supplement of about 20 grams per day of concentrated dietary fibre from wheat bran, cabbage, carrot or apple increased the fecal weight of healthy subjects by 127, 69, 59 and 40 per cent, respectively. The committee recommended that the adult population double their dietary fibre consumption. This goal could be met by simply consuming a variety of foods containing an average to high level of dietary fibre.

The results of a recent study[28] showed that edentulous elderly subjects who had non-functional dentures consumed less fibrous foods (fruits and vegetables) than those with functional dentures. This difference was more important among women. Furthermore, subjects without functional prostheses took more medication to treat gastrointestinal disorders. It may be assumed that a lower dietary fibre intake, related to the non-functional status of dentures, induced gastrointestinal disturbances severe enough to require medication in certain susceptible subjects.

Review of Prosthetic Rehabilitation Programs

Even though the effects of masticatory performance have been described in many books dealing with geriatric nutrition,[29-32] few treatment programs have been established. Renaud et al[33] measured the effect of ridge extension procedures with skin graft, and of ridge augmentation procedures with bone graft, on the prevalence of dietary problems in 33 edentulous adults affected by marked atrophy of the maxillae and unstable dentures. These procedures were found to result in improvements in the subjects' ability to bite into and chew foods, even those containing seeds, and to reduce the size of the food particles swallowed. Dietary counselling was suggested as a means of enhancing the effect of the changes made in dietary habits. A subsequent study[34] by the same authors reported no major differences in the macronutrient intake of 56 subjects whose deficient residual ridges were surgically reconstructed prior to the insertion of functional dentures, although the texture of the diet was modified.

Sandstrom & Lindquist[35] evaluated the effect that different prosthetic restorations of masticatory ability had on the dietary selection of 23 edentulous patients wearing non-functional dental prostheses. The subjects were first treated to achieve optimal denture conditions (new complete dentures or relining and occlusal equilibration), and then given a fixed prosthesis on tissue-integrated implants in the lower jaw. This study showed a slight increase in the consumption of crisp bread and fresh fruits, without any other changes in the dietary selection. The authors concluded that an improvement in masticatory efficiency cannot, by itself, change food selection, and that dietary counselling should be added.

Powell et al[36] noted, eight months after maxillary reconstruction and the fitting of secure dentures, that a reduction in the symptoms of dyspepsia occurred in 76 per cent of the 46 subjects who presented severe maxillary atrophia and had retention problems with their dental prostheses. Fourteen months later, 51 per cent of the treated subjects did not feel any more discomfort, and 35 per cent reported a decline in their symptoms of dyspepsia. According to the authors, the large size of the food particles swallowed seemed to be related to the problem of gastric irritation.

The food intake and food selection of elderly individuals could probably be improved through programs combining dental treatment and dietary counselling.

Conclusion

Many factors influence the nutritional status of elderly individuals, and thus influence their general health status. The effects of psychological, sociological and economic factors were omitted from this paper, but are clearly important determinants in the food choice of elderly individuals. Several studies in the fields of nutrition and dentistry have demonstrated that it is possible to take positive action against the onset of gastrointestinal disorders in the elderly, and even to prevent it.

Various public programs to improve the quality of life of the elderly, by offering them more appropriate services, must be initiated. Digestive problems in the elderly are associated with a high level of consumption of medical services. Gastrointestinal disturbances seem to be tightly linked to the problem of inefficient mastication. There is a need for joint programs that couple dental and dietetic interventions. Such a pluridisciplinary approach would be more adapted to the global strategy that elderly persons usually require. ■

Danielle Laurin *and* **Josée Bourdages** *were research assistants at the School of Dental Medicine at Laval University, at the time of this review.*

Dr. Brodeur *is director of the Interdisciplinal Research Group of Health at the University of Montreal.*

Dr. Leduc *is a post-doctoral fellow at McGill University.*

Ms. Diane Lachapelle *and* **Dr. Vallée** *are respectively secretary and dean at the faculty of dental medicine at Laval University.*

Reprint requests to: **Dr. Jean-Marc Brodeur**, *Director, Interdisciplinal Research Group of Health, Faculty of Medicine, University of Montreal, 2375 Chemin de la Cote Ste-Catherine, Montréal, Qué. H3T 1A8.*

References

1. Carlos, J.P. and Wolfe, M.D. Methodological and nutritional issues in assessing the oral health of aged subjects. *Am J Clin Nutr* 50:1210-1218, 1989.
2. Carlsson, G.E. Masticatory efficiency: the effect of age, the loss of teeth and prosthetic rehabilitation. *Int Dent J* 34:93-97, 1984.
3. Kapur, K.K. and Soman, S.D. Masticatory performance and efficiency in denture wearers. *J Prosthet Dent* 14:687-694, 1964.
4. Manly, R.S. and Braley, L.C. Masticatory performance and efficiency. *J Dent Res*

29:448-462, 1950.
5. Chauncey, H.H., Muench, M.E., Kapur, K.K. et al. The effect of the loss of teeth on diet and nutrition. *Int Dent J* 34:98-104, 1984.
6. Yurkstas, A.A. and Emerson, W.H., Dietary selections of persons with natural and artificial teeth. *J Prosthet Dent* 14:695-697, 1964.
7. Geissler, C.A. and Bates, J.F. The nutritional effects of tooth loss. *Am J Clin Nutr* 39:478-489, 1984.
8. Knapp, A. Nutrition and oral health in the elderly. *Dent Clin North Am* 33:109-125, 1989.
9. Chandra, K.K. Nutritional regulation of immunity and risk of infection in old age. *Immunology* 67:141-147, 1989.
10. Statistics Canada. *The Elderly in Canada*. Ottawa, Supply and Services Canada, 1984.
11. Munro, H.N., Suter, P.M. and Russell, R.M. Nutritional requirements of the elderly. *Ann Rev Nutr* 7:23-49, 1987.
12. Health and Welfare Canada, Nutrition Recommendations. The Report of the Scientific Review Committee. Ottawa, Supply and Services Canada, 1990.
13. Bowman, B.B. and Rosenberg, I.H. Digestive function and aging. *Hum Nutr: Clin Nutr* 37C:75-89, 1983.
14. March, D.C. *Handbook: Interactions of selected drugs with nutritional status in man*, 2nd ed., Chicago, The American Dietetic Association, 1978.
15. Roe, D.A. Drug effects on nutrient absorption, transport and metabolism. *Drug Nutrient Interactions* 4:423-428, 1985.
16. Terezhalmy, G.T. Rational pharmacotherapy for the elderly. *Dent Clin North Am* 33:59-66, 1989.
17. Minaker, K.L. and Rowe, J.W. Gastrointestinal system. In: *Health and Disease in old age*, J.W. Rowe and R.W. Besdine (eds.), Boston, Little, Brown and Company Inc., 1982.
18. Rodriguez-Olleros, A. Gastritis in the toothless. *Rev of Gastroenterol* 14:180-185, 1947.
19. Mumma, R.D. and Quinton, K. Effect of masticatory efficiency on the occurrence of gastric distress. *J Dent Res* 49:69-74, 1970.
20. Gunne, H-S.J. and Wall, A-K. The effect of new complete dentures on dietary intake. *Acta Odont Scand* 43:257-268, 1985.
21. Osterberg, T. and Steen, B. Relationship between dental state and dietary intake in 70-year-old males and females in Göteborg, Sweden: a population study. *J Oral Rehabil* 9:509-521, 1982.
22. Baxter, J.C. The nutritional intake of geriatric patients with varied dentitions. *J Prosthet Dent* 51:164-169, 1984.
23. Schneeman, B.O. Dietary fiber. *Food Technol* 10:133-139, 1989.
24. Massler, M. Geriatric nutrition. Part IV: The role of fiber in the diet. *J Prosthet Dent* 50:5-7, 1983.
25. Health and Welfare Canada. Report of Expert Advisory Committee on Dietary Fibre. Ottawa, Bureau of Nutritional Sciences, Health Protection Branch, 1985.
26. Cherbut, C. Fibres alimentaires et substances de charge: aspects physiologiques et nutritionnels. *Cah Nutr Diét* XXIV:439-444, 1989.
27. Cummings, J.H., Branch, W., Jenkins, D.J.A., et al. Colonic response to dietary fiber from carrot, cabbage, apple, bran, and guar gum. *Lancet* 1:5-9, 1978.
28. Laurin, D. and Brodeur, J.-M. Chewing efficiency on nutrition and gastrointestinal disorders in edentulous elderly. (abstract) *J Dent Res* 71:214, 1992.
29. Curran, J. Overview of geriatric nutrition. *Dysphagia* 5:72-76, 1990.
30. Granieri, E. Nutrition and the older adult. *Dysphagia* 4:196-201, 1990.
31. Henderson, C.T. Nutrition. In: *Geriatric Medicine*, 2nd ed. Cassel, Riesenber, Sorenson, Walsh (eds.) New York, Splinger-Verlag, 1990.
32. Vellas, B. and Albarede, J.L., *Nutrition et vieillissement*. Presses de la société d'exploitation de l'imprimerie Espic. Toulouse, 1988.
33. Renaud, M., Mercier, P. and Gélinas, M.D. Dietary problems before treatment and after rehabilitation of the masticatory function. *J Can Diet Assoc* 42:324-327, 1981.
34. Renaud, M., Mercier, P. and Vinet, A. Does the rehabilitation of the masticatory function influence the nutritive value of the diet? *The St-Mary's Hospital Medical Bulletin* 24:186-193, 1982.
35. Sandström, B. and Lindquist, L.W. The effect of different prosthetic restorations on the dietary selection in edentulous patients. *Acta Odont Scand* 45:423-428, 1987.
36. Powell, A., Mercier, P. and Vinet, A. Dyspepsia and its relief with restored mastication efficiency (abstract). *Gastroenterology* 80:1254, 1981.

CDSPI PRESENTS

"CHARTING YOUR FUTURE FINANCIAL SECURITY"

Two new seminars to help dentists reach their goals at two stages of life and career

Revised and expanded from previous years Retirement Planning Seminars, the new format is tailored to meet the financial planning needs of dentists at two stages of life and career.

SEMINAR ONE

For dentists who are in the early stages of financial planning and setting up a home and family. Topics include:

- *Building wealth*
- *Adding value to your practice*
- *Buying a home*
- *Selection of stocks and bonds*
- *Funding your children's education*

Comments from past participants:

"Packed full of useful info for the DDS and his family."
Montréal

"After attending the original seminar two years ago I have implemented several points and now feel nearer to my aims and financial goals"
Toronto

"Excellent presentation. First class seminar."
Vancouver

"Seminar topics were very, very relevant and can be 'used in the trenches...'"
Toronto

"Highest rating!"
Québec City

SEMINAR TWO

For dentist's who have already done some financial planning and are seeking to improve on it, as well as protect their lifestyle into retirement. Topics include:

- *Investment strategies*
- *Estate planning*
- *Valuing and selling your dental practice*
- *Living on your RSP*

COST OF EACH SEMINAR

$390 per dentist (plus $27.30 GST) if a participant in CDIP or the CDA RSP. **$425** per dentist (plus $29.75 GST) for all others. Special savings to attend both seminars (call for details). Spouse attends free if registered — includes lunch, refreshments and workbook.

Seminar dates and locations

Sept. 11-12	London, Ontario
Sept. 18-19	Moncton, New Brunswick
Sept. 25-26	Montréal, Québec
Oct. 2-3	Vancouver, B.C.
Oct. 16-17	Kingston, Ontario
Oct. 23-24	Calgary, Alberta
Oct. 30-31	Toronto, Ontario
Nov. 8-9	Toronto, Ontario
Nov. 13-14	Edmonton, Alberta

Call Pat McNab, Seminar Co-ordinator today to register or get more information.

CDSPI

1-800-561-9401 *(Outside Toronto)*
416-296-9401 *(Metro Toronto)*
416-296-8920 *(Fax)*

NOTE: Seminars are limited to 60 participants (including spouse), so please register early to avoid disappointment.

A-DEC BRINGS INFECTION CONTROL TO A WHOLE NEW DECADE.®

The Decade® IC System by A-dec. The delivery system engineered to make infection control fast, easy and productive for your practice.

Designed for maximum cleanability, the Decade IC control combines a smooth design, cleanable holders and controls placed out of the aerosol zone. A foot-operated wet/dry control gives you hands-free operation. And thanks to a removable, autoclavable key, dirt-catching knobs are eliminated.

In fact, every component of the Decade IC system is easy to clean. The autoclavable syringe is specially shaped for fast, thorough cleanup. A quick-release head lets you change from one syringe to another – fast. The Easy-Clean HVE features a one-piece valve that removes in seconds without tools, making it easy to clean, inside and out. Team this with smooth tubing and our handpiece flush system and you have a control system unsurpassed for infection control.

Emphasis on infection control continues with the Decade® Cuspidor. From the smooth housing and removable glass bowl, to the streamlined button design and smooth surfaces, the entire cuspidor wipes down easily. There's even a timed bowl rinse, plus removable rinse and cup fill spouts. All at a price that makes infection control an affordable value.

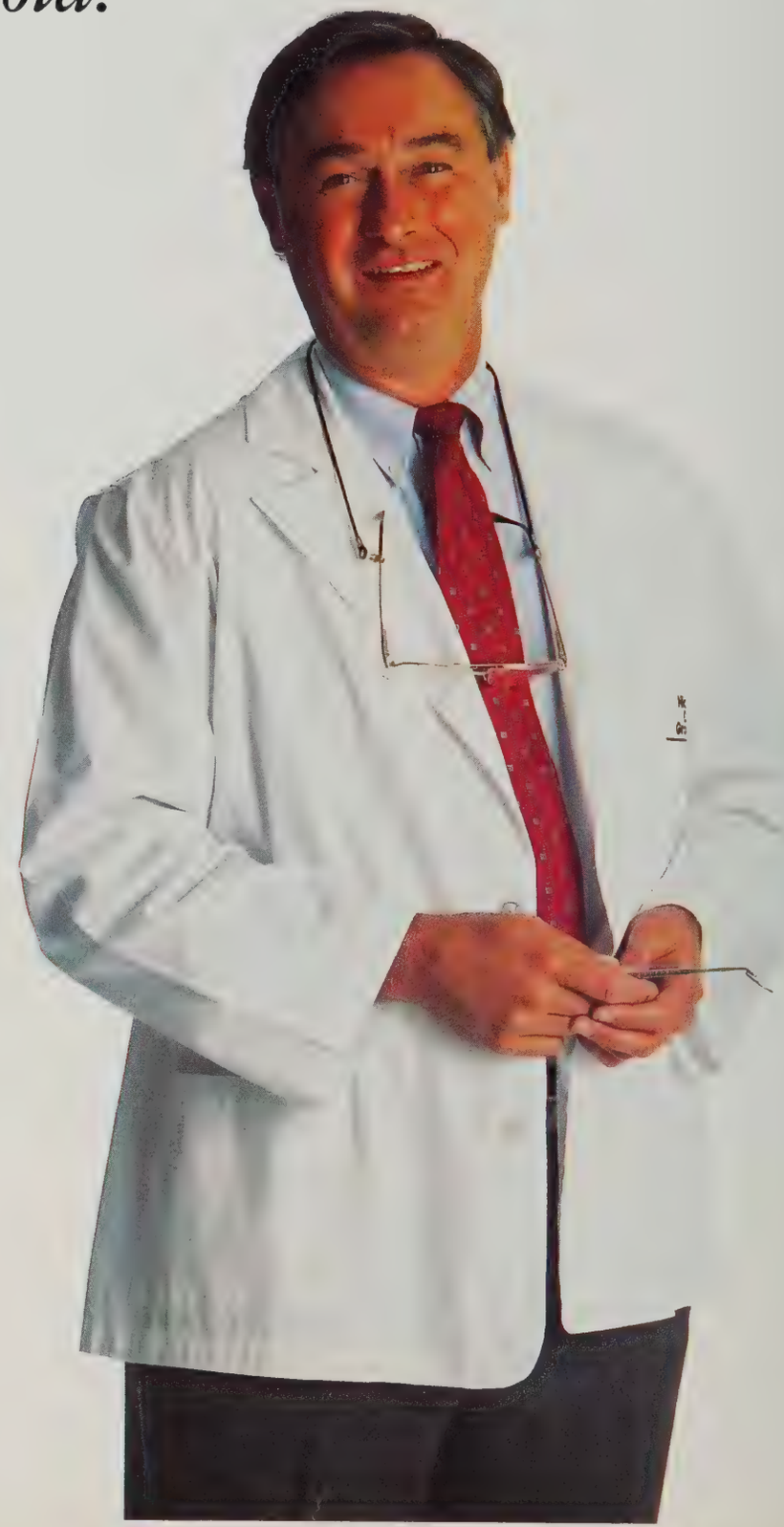
To make the '90s the infection control decade for your practice, contact your authorized A-dec dealer today.

a-dec®

A-dec, Inc., P.O. Box 111, 2601 Crestview Dr., Newberg, OR 97132 USA, (503) 538-9471, Fax: (503) 538-5911. © A-dec, Inc., 1992. All rights reserved.

"With CDAnet it takes seconds to file a claim. And some carrier payments are issued in as little as a few days. I'm sold."

Dr. Tillman Kershaw
Niagara Falls, Ontario



CDAnet...
A REVOLUTIONARY ADVANCE IN CLAIMS PROCESSING

CDAnet is now at work in hundreds of dental offices across Canada. And it is delivering on its promises: speedy claims processing, quick claims payment, and satisfied patients.

CDAnet – a revolutionary advance in claims processing.

Get it working for you.

For more information call:
1-800-267-9701.

CDAnet™
Dentistry's National Information Network

Denture identification: The University of Manitoba's denture identification service

Bonnie Wong, DMD
Carla Fogel, DMD
Douglas Galan, DMD, M.Sc.
Barbara Krochak, BA (Econ.)
Winnipeg, Man.

Introduction

Identification labelling is an important and usually overlooked aspect of a denture prosthesis. It has become necessary to identify dental prostheses with a patient's name, or another suitable marking, because of the increasing number of denture wearers who are confused or demented and residents of an institutional setting. A suitable label facilitates the speedy retrieval of a misplaced denture that has been found by nursing home or hospital staff, possibly at the bottom of a laundry pile, in another resident's room, or even in another resident's mouth.[1-4]

The routine use of denture identification (ID) is also important for forensic purposes, because it improves and simplifies the recognition of disaster and accident victims.[1,5-10] There are a number of other reasons to identify denture prostheses, namely:

1) unobtrusive methods of denture identification may be used that do not violate the confidentiality of the denture-wearing individual;[11-14]

2) there is a decrease in the dental disability or inconvenience associated with misplaced dentures;[11-14]

3) the expenditure for an ID is extremely low compared to the cost of replacing a lost denture or the quality-of-life losses associated with being without a denture;[11-14] and,

4) providing an ID service to nursing homes may become a practice builder for dentists interested in offering dental services to the residents of these facilities.[15]

An interesting anecdote, as told by Harvey,[8] further supports the use of denture identification. An old age pensioner, while on holiday in England, found himself without money or his pension book. When he went to withdraw some funds, he had to explain his predicament to the wary clerk and produce proof of his identity. Since he carried no identification, he presented his labelled dentures to prove his identity. The astonished but amused clerk paid the elderly person's pension without hesitation.

Even though there are strong arguments in favor of placing IDs on denture prostheses, there are also some arguments against its use. For example, there is a perception that mandatory identification of denture prostheses will result in a loss of the personal confidentiality of denture wearers, or in an infringement of their human rights.[16]

Other concerns centre around the label itself. Some patients may have esthetic concerns, specifically that the denture label will be noticed by other people. In addition, the mechanical strength of the denture acrylic may be weakened during the labelling process, with fracture lines being produced by the label at the ID site, particularly when metal ID tabs are used.[8,17,18]

When IDs are used, the labels should be positioned to ensure that they are not visible when the dentures are being worn. The posterior lingual flange on the mandibular denture and the posterior buccal flange or the posterior palatal area of the maxillary denture are the most common label sites. The inner surface of a denture should not be used because denture stability may be altered. The only exception would be the post dam area. A series of guidelines (**Table I**) on labelling have been formulated by the American Dental Association (ADA) that outline the appropriate placement of denture IDs.[19]

Various methods of ID placement have been used, including ID marking instruments, sealant systems, denture engraving and scratching, and inclusion techniques. These methods differ in the ease of ID placement and in the longevity of the label.

ID marking instruments, usually felt pens or graphite pencils, are a quick labelling technique that involves a direct application of the marking to the denture surface. Water-based felt pens are capable of diffusing into the acrylic resin, but their marking becomes less distinct with time.[11] Alcohol-based felt pens produce a neater marking, but are only good for short-term use.[11] In a study where different brands and colors of felt pens were compared using both abrasion and denture cleanser immersion tests, most of the pen marks became illegible within three weeks.[20] Pencils are better ID marking instruments than felt pens, because the markings produced are more legible.[11] Longevity is a problem, however, because re-labelling is often necessary within three to four weeks of the initial ID placement.[21] If a pencil is used as the marking device, the marking should be covered with a sealant coating.

A sealant coating, produced using either commercial or non-commercial sealant systems, can be used to cover an ID marking. One of the better known commercial systems is the Identure Marking Kit, marketed by 3M, which uses two layers of a sealing liquid to

TABLE I

American Dental Association Guidelines For Denture Identification

1. The strength of the prosthesis must not be jeopardized
2. It must be easy and inexpensive to achieve
3. The identification system must be efficient
4. Markings must be visible and durable
5. Identification must withstand humidity and fire
6. The identification mark should be cosmetically acceptable to the wearer

TABLE II

Materials and Equipment Used for Denture IDs

Lang's Flexacryl-Hard clear, self-curing relining acrylic
Dremel moto-tool drill and acrylic burs
Onion-skin paper with residents name typewritten
Lathe and polishing materials
Pressure pot and bicycle pump (for pressurizing the pot)
Ultrasonic cleaner

cover a pencil marking. Studies on this system show that a denture marking remains intact for six to 12 months, although it is recommended that the ID be inspected every six months.[2,11,20,22-24] Other sealing liquids, such as polymethylmethacrylate (PMMA) in toluene, nail varnish, PMMA in chloroform, and cyanoacrylate, could also be used. Studies with these systems illustrate that PMMA in toluene or chloroform, and cyanoacrylate are satisfactory sealers, and can preserve a pencil marking for at least six months.[2,11,25] Nail varnish is not suitable as an ID sealer due to the opaquing and obliteration of the ID marking.[11]

Denture engraving and scratching are easy, inexpensive techniques for denture marking. An ID may be scratched or engraved onto a model before processing the final denture prosthesis, yielding an embossed lettering on the denture or on the denture base, and producing a countersunk lettering.[6,26]

A dental bur may be used to engrave an identifying label – not only on acrylic dentures, but also on cast metal frameworks.[1] One disadvantage of this technique is that it creates a certain amount of roughness on the fit surface of the denture, which has been shown to cause a malignant change to the palate.[27] In addition, inscribing the fit surface of the denture may make it more difficult to reproduce the anatomical detail of the denture-bearing area.[9] It is also somewhat difficult to produce a small, legible label that is esthetically pleasing.

A denture scratching technique can also be used, where the ID is lightly scratched onto the denture using straight lines.[21] Curved lines are avoided because they are more difficult to place. With this technique, a lead pencil or ink pen is rubbed over the grooves to make them more evident. The major drawback is that the pencil or ink placement has to be repeated frequently to maintain the ID's legibility.

Inclusion techniques are probably the best method for identifying denture prostheses, from the standpoint of both longevity and esthetics. The techniques may vary in the type of label that is used, but are similar in that the label is placed directly into the denture acrylic. In each case, a groove or trough is made in the denture base, either during processing or once denture fabrication has been completed, and the ID label is placed in this groove.

Pencil or felt pen markings,[15,18,28] paper labels,[17,29-33] or special metal tabs or strips[10,16,34-39] are fitted into the prepared groove. The groove is then covered over with a self-curing acrylic resin, thereby embedding the ID label permanently into the denture for the life of the prosthesis. Metal labels are the inclusion ID of choice, because they are heat resistant and preferred for forensic identification purposes.[37-39]

At the University of Manitoba, a denture ID service was established that used an inclusion technique to place ID labels into the dentures of residents living in Winnipeg area nursing homes. This service was operated during the summer of 1990. The purpose of this paper is to describe the technique used for denture ID placement, and to discuss the findings of the project.

Materials and Technique

Nursing homes interested in the University of Manitoba's denture ID service were initially contacted by phone, and suitable days for ID placement were identified. The ID service was provided on-site in the nursing homes, generally over a one- to two-week period, depending on the size of the nursing home and the number of residents. A $5 per denture fee for ID placement was paid by either the nursing home or the individual resident. Residents who did not wish to receive this service, or whose families refused to consent to the labelling, were under no obligation to participate in the program.

A list of the materials and equipment used for ID placement is provided in Table II. Initially, the dentures were collected from the nursing home's residents and placed in bags labelled with the owner's name. The residents' surnames and first initials were pre-typed onto onion skin paper, and placed into the collection bags by the nursing homes. Prior to labelling, the dentures were placed in an ultrasonic cleaner containing a disinfectant solution (Pathex) for five to 10 minutes to remove any debris, followed by additional brushing or scaling, where indicated.

A 2.0 mm trough was then cut in the acrylic of each denture using a Dremel moto-tool fitted with an acrylic carbide bur. The trough was cut only slightly larger than the resident's ID label to allow complete seating of the label. Whenever possible, the troughs were cut adjacent to the bicuspids and molars, on the lingual surface of the mandibular denture or on the palatal surface of the maxillary denture. If this proved to be impossible, due to the length of the resident's name or because the denture was too thin, the buccal flange of the denture was substituted. After the trough was cut, each denture was ultrasonically cleaned, once again, to remove any cutting debris.

To begin label placement, the paper label was first trimmed to fit the trough, and then secured into place with a very thin mixture of self-curing acrylic resin. It was important that the denture did not come into contact with water when the acrylic was placed in order to prevent porosities and other defects from forming in the ID area. Equally important, the ink used on the paper label had to stay-fast in the monomer to prevent the ink from running. This was tested before label placement.

A thicker mixture of acrylic was then mixed and used to fill the troughs. The acrylic was allowed to gel for three to five minutes, depending upon the viscosity of the mix. A pressure pot, filled with enough hot water to cover one to two inches above the top of the dentures, was pressurized to 25 psi using a bicycle pump. The dentures were then allowed to cure for 10 to 20 minutes. After curing, excess acrylic was removed from each denture using the Dremel moto-tool, and the dentures polished on a lathe. Before being returned to the residents, all dentures were rinsed and cleaned ultrasonically one final time.

In addition to placing the labels, the service providers also documented information on the state of the dentures

being labelled. The type of denture (i.e., complete or partial); the presence of calculus, staining, or debris; any broken or missing teeth; poor quality denture bases; old relines; worn teeth; and the presence of cracked or chipped bases, were all recorded.

Results

Four Winnipeg-area nursing homes were visited by the denture ID service and a total of 414 dentures were labelled. The breakdown of the dentures labelled by the service includes: 219 complete maxillary dentures, 167 complete mandibular dentures, 18 partial maxillary dentures, and 10 partial mandibular dentures. During a single day of ID placement, it was possible to label about 40 individual dentures. Obviously, it was desirable for the residents to have the use of their dentures during meals. In order to avoid any inconvenience, the maximum amount of time that the residents were left without their dentures was approximately three hours. Needless to say, the placement procedure was more efficient when it was done in an assembly line fashion, with two people working at once.

It was found that one quarter of the dentures (110) contained calculus, stain, and plaque, as well as having food debris adhering to the denture base or the teeth. In many cases, it was necessary to scale away the stain and calculus, or at the very least, to brush away the soft plaque and food left on the dentures. Other denture defects were also present. For example, in 102 dentures the prosthetic teeth were worn to the point where they needed replacement. Missing, broken or chipped teeth were documented on 73 dentures. Poor quality denture bases were found in 11 dentures, five of which still had a vulcanite denture base. Eight of the dentures had either midline cracks or broken denture flanges, while four dentures contained a temporary or commercial home reline. The intraoral retention, stability and occlusion of these prostheses was not evaluated.

Discussion

The choice of what type of denture ID to use should correspond to the reasons for pursuing the identification, and these reasons should be clearly identified. For short-term purposes, a pencil marking or denture scratching technique can be quickly and easily applied to a denture base. There are limitations with both of these systems, however, and a reapplication of the pencil marking will be required within three to four weeks of its initial placement. Despite their poor longevity, these two systems may be suitable for use in a hospital or respite setting, where the anticipated length of stay is often short (less than three weeks), and where the placement of a more permanent ID may not be appropriate.[11]

Certainly, in an institutional setting, other systems should be used to improve ID longevity. Sealant systems may be used, but the sealing liquid should be tested on the labelling pencils or inks before beginning the procedure to ensure marker permanence.[18] Although an improved longevity can be expected with sealant systems, they should only be considered for medium-term use (approximately six months), and are not recommended as a permanent ID system.

For long-term success, an ID inclusion technique that uses a self-curing acrylic resin to cover a groove containing a pencil, paper or metal label should be used. These labelling systems are permanent and should remain intact for the lifetime of the denture. Probably the only drawbacks to the inclusion techniques are that some extra equipment is needed to prepare the denture base for the label, and that the labelling process requires more time to complete.

The University of Manitoba denture ID service used an ID inclusion technique because the dentures that were being labelled were those of institutionalized adults. Placement of the labels was labor-intensive, but nevertheless, the dentures of residents in an average-size nursing home could be labelled within one to two weeks. Essentially, the technique used was in accordance with the ADA guidelines, except that a fire retardant ID label was not employed. This type of label was not used because its expense would have added significantly to the cost of the ID service. The intent of the service was to provide a denture ID that was affordable to all institutional residents and/or nursing homes.

The cleanliness and quality of many of the dentures labelled by the denture ID service was found to be quite poor. A lack of denture hygiene was a major problem, and may be a reflection of the low priority placed on oral hygiene, and the lack of available staff in nursing homes to carry out this task. However, the findings pertaining to the quality of dentures indicate that there were some significant deficiencies in the dentures worn by the nursing home residents. Probably the most distressing finding was that most of these deficiencies could be repaired, yet nothing had been done by the nursing home staff or the families of the residents to rectify them. The retention, stability and occlusion of the dentures labelled by the service was not evaluated, although it would be valuable to assess these parameters to gain a complete understanding of the denture status of the nursing home residents.

Overall, most denture ID procedures are inexpensive to provide and take relatively little time to perform. Depending on the longevity required, different ID procedures can be executed. The reasons cited in support of the routine use of ID labels in all dentures far outweigh any possible reasons for not performing this task. Dentists and dental technicians should routinely request permission to place IDs in all denture cases. In the United States, many dental labs are required by law to label all dentures with a name and date. As of March 1989, 12 American states had mandatory denture ID laws. In addition, the Veterans Administration and the U.S. Armed Forces routinely label all removable dental prostheses.[40] ADA has formulated a series of guidelines for appropriate ID placement (**Table I**). In Canada, however, no mandatory ID legislation exists and only the Canadian Armed Forces routinely places denture IDs. To date, no denture ID legislation has been drafted by the Canadian Dental Association (CDA) or any of the provincial dental associations, and there are still no guidelines for the identification procedure. However, CDA's board of governors approved a denture labelling policy during its interim meeting last April.

The CDA policy states that:

a) all removable dental appliances should be labelled at the time of their fabrication with at least the patient's name; and,

b) all intermediate and long-term care facilities adopt the policy of laboratory labelling of the patient's removable dental appliances upon patient admission to the institution.

In the authors' opinion, such a drastic step as mandatory ID labelling legislation is not needed in Canada. However, the dental profession should rig-

orously campaign in commercial dental labs, hospitals and institutional settings for the routine placement of denture IDs. ■

Acknowledgements: *The authors wish to express their thanks to* **Mr. K. Chizick, CDT** *of the University of Manitoba for demonstrating and teaching the ID procedure. Additional thanks to* **Dr. P.T. Williams**, **Dr. L. Richardson**, *and* **Mr. B. McCann** *for the loan of the lab equipment needed to place the IDs.*

Dr. Bonnie Wong *and* **Dr. Carla Fogel** *were both fourth year dental students at the University of Manitoba at the time of the project, and are now in private practice.*

Dr. Douglas Galan *is a part-time assistant professor in community dentistry programs at the University of Manitoba.*

Ms. Barbara Krochak *is program coordinator in community dentistry programs at the University of Manitoba.*

Reprint requests to: **Dr. Galan**, *Faculty of Dentistry, University of Manitoba, 780 Bannatyne Ave. Winnipeg, Man. R3E OW3.*

References

1. Harvey, W. Identity by teeth and the marking of dentures. *Br Dent J* 121:334-340, 1966.
2. Pugnier, V.A. and Jordan, W.A. Denture identification in nursing homes. *Northwest Dent* 48:312-315, 1969.
3. Dorion, R.B.J. Marking of dentures. *J Canad Dent Assoc* 38:305, 1972.
4. Johanson, G. and Ekman, B. Denture marking. *JADA* 108:347-350, 1984.
5. Editorial. Dentists and disasters. *Aust Dent J* 14:62, 1969.
6. Haines, D.H. Identification in mass disasters from dental prostheses. *Int J Forens Dent* 1:11-15, 1973.
7. Cameron, J.M. and Sims, B.G. *Forensic Dentistry*, Edinburgh, Churchill Livingstone, 1974.
8. Harvey, W. *Dental Identification and Forensic Odontology*, London, Henry Kimpton Publishers, 1976.
9. Turner, C.H., Fletcher, A.M. and Ritchie, G.M. Denture marking and human identification. *Br Dent J* 141:114-117, 1976.
10. Davis, D.J. "Invisible" denture identification: a forensic aid. *J Prosth Dent* 48:221, 1982.
11. Harrison, A. A simple denture marking system. *Br Dent J* 160:89-91, 1986.
12. Hogan, J.I. Marking dentures. *Br Dent J* 162:174, 1987.
13. Kamen, S. On denture identification. *NY State Dent J* 53:4, 1987.
14. Davenport, R.E. In support of denture identification. *NY State Dent J* 54:6, 1988.
15. Young, K.L. On-site denture identification can be a practice-builder. *Dent Econ* 77:68-70, 1987.
16. Pyke, T.F. Personal identification from artificial dentures. *Aust Dent J* 15:495-498, 1970.
17. Fletcher, A.M., Turner, C.H. and Ritchie, G.M. Denture marking methods and induced stress. *Br Dent J* 142:224-226, 1977.
18. Heath, J.R. Denture identification – a simple approach. *J Oral Rehabil* 14:147-163, 1987.
19. Standards for Identification. Council on Prosthetic Services and Dental Laboratory Relations. American Dental Association.
20. Deb, A.K. and Heath, M.R. Marking dentures in geriatric institutions. *Br Dent J* 146:282-284, 1979.
21. Stevenson, R.B. Marking dentures for identification. *J Prosth Dent* 58:255, 1987.
22. Johns, L.D., Boone, M.E. and House, J.E. Use of in vitro test method as supplied to denture surface identification. *J Prosth Dent* 33:454-457, 1975.
23. Harcourt, J.K. A simple system for denture marking. *Aust Dent J* 31:375, 1986.
24. Davis, J. Oral answers. *Nurs Elder* 2:10-11, 1989.
25. Heath, J.R., Zoitopoulos, L. and Griffiths, C. Simple methods for denture identification: a clinical trial. *J Oral Rehabil* 15:587-592, 1988.
26. Standring, G. Identification of missing persons from their dentures. *Br Dent J* 138:415, 1975.
27. Cavalier, M. Earlier neoplastic change related to a denture identification mark. *Br Dent J* 140:23-24, 1976.
28. Fiske, J., Graham, T. and Gelbier, S. Denture identification for elderly people. *Br Dent J* 161:448-449, 1986.
29. Jeffreys, F.E. Identification by means of dentures. *U.S. Navy Med Bull* 42:194-195, 1944.
30. Vestermark, J. Identification by means of dentures. *Int J Forens Dent* 3:7-8, 1975.
31. Todo, J. and Lukens, E.M. A technique for placing names in dentures. *J Prosth Dent* 37:469-471, 1977.
32. Woodward, J.D. Denture marking for identification. *JADA* 99:59-60, 1979.
33. Chalian, V.A., Sayoc, A.M., Ghalichebaf, M. et al. Identification of removable dental prosthesis. *J Prosth Dent* 56:254-256, 1986.
34. Harvey, W. Marking of dentures. *Br Dent J* 128:111-112, 1970.
35. Masser, D.S. A name in the plate. *Dent Tech* 24:40, 1971.
36. Jerman, A.C. Denture identification. *JADA* 80:1358-1359, 1968.
37. MacEntee, M.I. and Campbell, T. Personal identification using dental prostheses. *J Prosth Dent* 41:377-380, 1979.
38. Cotter, W.A. and Chaney, S.A. A conservative cosmetic identification concept for prosthetic appliances. *J Canad Dent Assoc* 54:601-604, 1988.
39. Toolson, L.B. and Taylor, T.D. Method for denture identification. *J Prosth Dent* 61:114-115, 1989.
40. Lasky, R.E. The dentist, forensics and the law. *NY State Dent J* 55:32, 1989.

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at July 31, 1992	June 30, 1992
Bond & Mortgage Fund	100.47502	96.56198
Common Stock Fund	17.90867	17.53775
Money Market Fund	61.41163	61.07537
Balanced Fund	36.75389	35.54831

G.I.C. Fund Term	*Interest rates as at July 31, 1992	June 30, 1992
1yr	5.10%	6.10%
2yr	5.60%	6.85%
3yr	6.35%	7.60%
4yr	6.85%	7.85%
5yr	7.35%	8.35%

*(*rates subject to change without notice.)*

Total Assets (market value) of the Plan as of

July 31, 1992	June 30, 1992
$167,886,954.10	$164,670,319.00

For further information:

Write:

CDSPI
Retirement Services Dept.
Suite 710
100 Consilium Place
Scarborough, Ontario
M1H 3G8

or phone, toll free:

416-296-9401 Metro Toronto
1-800-561-9401 Service in English
Extensions: 252, 253, 254
1-800-665-9401 Service in French
1-416-296-8920 Fax.

Surface disinfection of saliva-contaminated dental X-ray film packets

G.V. Packota, DMD, Dip. Oral Rad., M.Sc.
K. Komiyama, DDS, PhD
Saskatoon, Sask.

ABSTRACT

A study was undertaken to determine the most effective method for the surface disinfection of saliva-contaminated dental X-ray film packets. Size 2 Kodak Poly-Soft film packets were placed in the oral cavities of patients and "sham" irradiated. After removal from the oral cavity, some of these packets were left untreated before being placed in transfer vials containing transport medium. Other packets were handled in one of three different ways before being placed in the transfer vials: 1) wiped with a piece of sterile tissue paper to remove visible saliva; 2) wiped once with a sterile piece of gauze soaked with disinfectant and then immediately wiped dry with a piece of tissue paper ("one-wipe" surface-disinfection technique); or, 3) wiped twice with a sterile piece of gauze soaked with disinfectant and allowed to air dry ("two-wipe" surface-disinfection technique). The transport medium was serially diluted and microbiological processing completed to obtain bacterial counts corresponding to the levels of bacterial contamination of the film packet surfaces.

The two-wipe surface-disinfection method effectively eliminated bacterial contamination of the film packets, with all of the disinfectants tested being equally effective. The one-wipe technique, using disinfectant, appeared to be slightly less effective. Mere physical removal of the saliva from the film packet, without the use of disinfectant, was the least effective method.

SOMMAIRE

On a fait une étude afin de déterminer la meilleure méthode pour désinfecter la surface des films radiographiques contaminée par la salive. Après avoir fait semblant de prendre des radiographies avec des films Poly-Soft nº 2 de Kodak, on a retiré ceux-ci de la bouche des patients et, sans les traiter, on en a rangé une partie dans leurs étuis avec la solution pour le transport. Avant de ranger les autres dans des étuis similaires, on les a traités de l'une des trois façons suivantes: 1) en les essuyant avec du papier de soie stérile pour enlever la salive qu'on pouvait voir; 2) en les essuyant une fois avec de la gaze stérile trempée dans des produits désinfectants, puis en les séchant immédiatement avec du papier de soie stérile (désinfection par essuyage simple); 3) en les essuyant deux fois avec de la gaze stérile trempée dans un produit désinfectant et en les laissant sécher (désinfection par essuyage double). On a ensuite procédé à une dilution des différentes solutions pour le transport afin d'en relever le taux de bactéries et de déterminer le degré de contamination de la surface des films.

La désinfection par essuyage double a réussi à éliminer toute bactérie, tous les produits désinfectants essayés ayant tous été également efficaces. Par contre, la désinfection simple avec un produit désinfectant s'est révélée moins efficace tandis que l'essuyage sans produit désinfectant est apparu la méthode la moins efficace.

Dental X-ray film packets may become contaminated with saliva, blood, and oral microorganisms during intraoral radiographic procedures. The potential for cross-contamination between patients through the handling of contaminated film packets by the operator has been demonstrated.[1]

At our dental school, there are no darkrooms to process dental films. All of the processors used for this purpose have daylight loaders. These units have fabric sleeves attached to their front openings to reduce the likelihood of white light artifacts. The sleeves may be a source of cross-contamination if the operator is wearing contaminated gloves while processing, or if the exposed film packets are contaminated. Opening the packets and handling the films while wearing latex gloves also seems to increase the frequency of static electricity artifacts on the radiographs, especially in the low relative-humidity conditions that typically occur during the Canadian winter.

Initially, the infection control protocol for intraoral radiography at our dental school required the operator to wipe contaminated film packets once with a swab moistened with disinfectant, and then to dry the packets before taking them to the processor. This procedure was to be done while wearing latex gloves. The school's current infection control protocol is similar, but it requires the surfaces of contaminated packets to be disinfected using a two-step method, as suggested by Hardie.[2] The students are instructed to remove their latex gloves after the packets have been treated, before using the processor, to avoid static electricity artifacts on the processed radiographs.

The washing and disinfection of plastic-wrapped film packets has been previously suggested – inasmuch as the packet is light-proof, it is equally assumed to be watertight.[3] There is nothing in the literature that describes investigations into the effectiveness of disinfecting the surface of contaminated dental film packets. The purpose of this study is to compare the effectiveness of the surface disinfection of film packets by approved disinfectants, and to determine the relative effectiveness of the one- and two-wipe methods using disinfectant, versus the mere physical removal of saliva without disinfectant.

Materials and Methods

Subjects and Intraoral Procedures

Patients accepted for treatment in the undergraduate clinic at the University of Saskatchewan's dental college were used as subjects for this study. These individuals were selected randomly, but had to fulfil the following criteria: 1) they had to have at least two posterior teeth in each quadrant; and, 2) they had to be clinically healthy (no "Yes" responses in their health questionnaire

and no abnormalities of the oral mucosa on visual examination).

Informed verbal consent was obtained from each patient immediately prior to the initiation of the X-ray procedures described below. First, the operator donned a pair of latex gloves and washed his or her hands with a bactericidal soap. Sterile Stabe disposable dental film holders (Greene Dental Products, Elgin, Illinois) and size 2 Poly-Soft film packets (Eastman Kodak Company, Rochester, New York) were removed directly from new packages using sterile cotton pliers. The standard procedure for making a periapical view of the mandibular first molar was carried out bilaterally to ensure that the film packet remained in contact with the patient's intraoral surfaces for the appropriate length of time. The only deviation from normal X-ray procedures was that the operator did not actually press the exposure button.

Experiment One

Twenty patients underwent the above procedures. One of the film packets (control) was removed from the mouth and placed directly into a glass container containing 10 mL of reduced transfer fluid.[4] The other packet (test) was removed from the mouth and placed onto a sterile towel. The test packet was then swabbed with a sterile two-inch by two-inch gauze pad that had been moistened with one of four test solutions – sterile distilled water or one of three accepted surface disinfectants: 1) a 1:256 dilution of iodophor with 75 parts per million titratable iodine (Asepti-IDC, Huntington Laboratories, Inc., Huntington, Indiana); 2) sodium hypochlorite (a 1:10 dilution of household bleach, 0.5 per cent solution); or, 3) a 1:80 dilution of a complex phenol containing 2.25 per cent orthobenzyl-para-chlorophenol and two per cent ortho-phenylphenol (Sani-Kleen 77, Mid-West Supplies, Winnipeg, Manitoba). The iodophor and complex phenol solutions were prepared prior to seeing the first patient and used throughout the experiment, whereas the sodium hypochlorite solution was mixed immediately prior to use. This was necessitated by the instability of this solution.[5] Sterile distilled water was used on the test packets from patients one, five, nine, 16, and 20; iodophor was used for patients two, six, 10, 15, and 19; complex phenol for patients three, seven, 11, 14, and 18; and hypochlorite for patients four, eight, 12, 13, and 17. The test packets were treated using the two-wipe method suggested by Hardie.[2] (In this technique, the contaminated surface is first wiped to remove visible debris, then wiped again, allowing the chemical to dry on the surface.) After the test packet was dry, it was placed into a vial of reduced transfer fluid.[4] When the samples were sent for microbiological processing, the technician did not know which, if any, disinfectant had been used. Since the solutions tested in this study all appeared to be equally effective, based on the results achieved after treating five separate samples with each one, the investigations were terminated at this point.

Experiment Two

Twenty-two patients were "sham" irradiated using the same techniques as in experiment one, and the resulting film packets were handled in an identical manner, except that visible deposits of debris and saliva were merely physically wiped from the surface of the control packets with sterile tissue paper, whereas the test packets underwent a one-wipe disinfection. Test packets were swabbed with a piece of sterile two-inch by two-inch gauze moistened with the complex phenol solution, and then wiped dry with a piece of sterile tissue paper while the disinfectant was still wet on the surface.

Microbiological Procedures

After the film packets were placed in the reduced transport fluid,[4] the samples were immediately transferred to the department of oral biology for microbiological procedures. To release microorganisms that may have attached to the packets, all containers were agitated on a rotator for 10 minutes. After dispersion and an appropriate serial dilution, each sample (0.1 mL) was streaked, in duplicate, on blood agar plates (trypticase soy broth, BBL, Cockeysville, Maryland) supplemented with two per cent sheep blood. Plates were incubated for 48 hours at 37° C under either aerobic or anaerobic conditions (10 per cent CO_2, 10 per cent H_2, 80 per cent N_2).

For each control and test sample, the number of colonies was counted and expressed as the number of colony-forming units per millilitre (CFU/mL).

TABLE I
Results of Experiment One

(Control: no treatment of packet. Test: two-wipe technique with disinfectant). Values given are in colony forming units (CFU)/mL x 10^3.

Patient	Control Samples			Test Samples	
	Anaerobic	Aerobic	Total	Anaerobic	Aerobic
1	121.0	59.0	180.0	0	0
2	36.0	29.0	65.0	0	0
3	4.7	2.3	7.0	0	0
4	29.3	13.7	43.0	0	0
5	12.4	4.7	17.1	0	0
6	1.7	0.6	2.3	0	0
7	26.6	17.8	44.4	0	0
8	41.6	20.3	61.9	0	0
9	12.1	6.6	18.7	0	0
10	57.0	40.0	97.0	0	0
11	158.7	118.9	277.6	0	0
12	66.7	46.5	113.2	0	0
13	11.7	4.4	16.1	0	0
14	9.5	4.0	13.5	0	0
15	147.0	12.8	159.8	0	0
16	41.5	46.0	87.5	0	0
17	65.0	31.5	96.5	0	0
18	26.0	26.0	52.0	0	0
19	6.8	8.3	15.1	0	0
20	3.5	3.1	6.6	0	0

Mean of total CFU/mL for control samples = 68.7 ± 69.2 x 10^3

TABLE II
Results of Experiment Two

(Control: physical removal of saliva. Test: one-wipe technique with disinfectant). Values given are in colony forming units (CFU)/mL x 10^3.

Patient	Control Samples			Test Samples	
	Anaerobic	Aerobic	Total	Anaerobic	Aerobic
1	0	0	0	1.5	0
2	1.5	0	0	1.2	0
3	0.8	0.5	1.3	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	2.7	1.2	3.9	0.5	0
7	3.2	1.7	4.9	0	0
8	2.4	1.0	3.4	0	0
9	0	0	0	0	0
10	1.2	1.1	2.3	0	0
11	0	0	0	0	0
12	0.6	0.4	1.0	0	0
13	7.1	3.6	10.7	0.5	0
14	2.0	1.1	3.1	0	0
15	0	0	0	0	0
16	1.1	1.4	2.5	0	0
17	1.0	0.9	1.9	0	0
18	0	0.3	0.3	0	0
19	0.6	0	0.6	0	0
20	2.0	0.2	2.2	0	0
21	0	0.1	0.1	0	0
22	0	0	0	0	0

Means: Control samples (total) = 1.7 ± 2.4; Test samples (total or anaerobic) = 0.2 ± 0.4 (difference statistically significant, $p < 0.01$)

Only total bacterial counts were obtained – no attempt was made to identify bacterial species.

Results

Tables I and **II** show the results of the two experiments. **Fig. 1** shows the difference between the mean of the bacterial counts for the control and test samples in Experiment Two. Both aerobic and anaerobic culture conditions revealed heavy contamination of all control packets in Experiment One, and of most control packets in Experiment Two. None of the test packets in Experiment One were contaminated, and in Experiment Two, most appeared to be equally free of contamination.

Because the results were obtained from two different experiments, using different patient subjects, it was not possible to perform statistical analyses on all the data. In Experiment Two, however, a t-test indicated a significant difference between control and test samples ($p < 0.01$).

Discussion

To avoid or prevent cross-contamination from contaminated film packets, several regimens for handling packets after their removal from the mouth and prior to film processing have been made. These include:

1) opening the exposed film packets in the darkroom using disposable gloves, dropping the films out of the packets onto a disposable towel without the operator touching the films, discarding the packet covers, removing the gloves, and then processing the films;[6,7]

2) wearing "food handler" gloves over the latex gloves (used for taking intraoral radiographs) when retrieving and developing the films;[8]

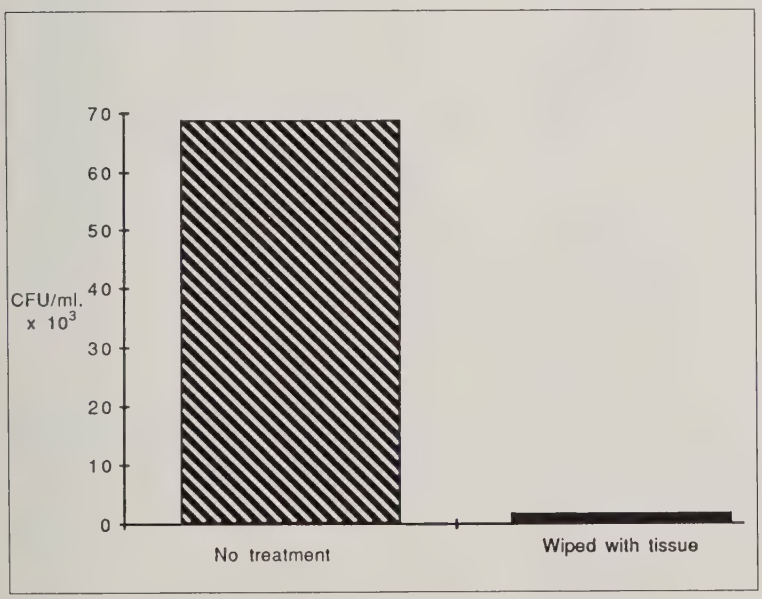


Fig. 1: Comparison of means of bacterial growth between control samples in Experiment One (no treatment) and Experiment Two (wiped with tissue).

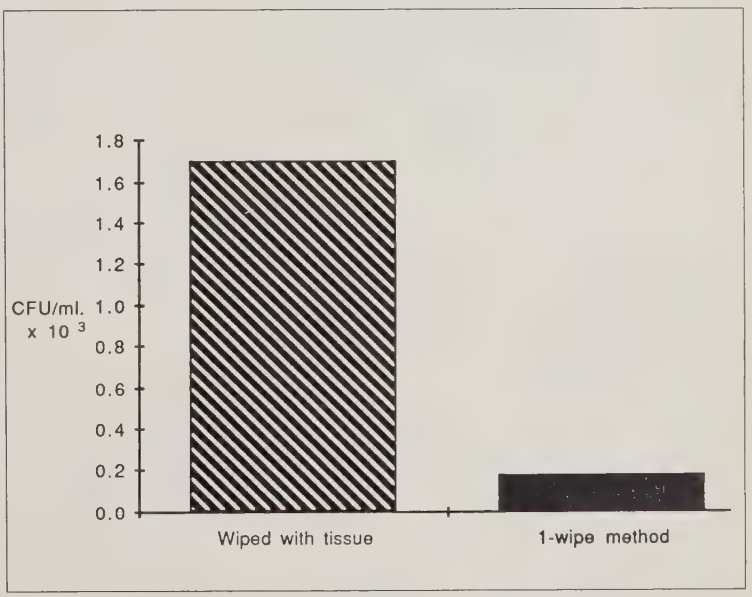


Fig. 2: Comparison of means of bacterial growth between control (wiped with tissue) and test (1-wipe method) samples in Experiment Two.

3) using a new pair of latex gloves to transport the films to the darkroom for processing;[9]

4) prepackaging sterile film packets in hermetically sealed plastic coverings[10] or finger cots[11]; and,

5) immersing poly-coated film packets in a 5.25 per cent sodium hypochlorite solution for 30 seconds prior to opening the film packets.[12]

There are disadvantages inherent in all of the methods described above. At our dental school, the technique of dropping the films out of their contaminated film packets onto a disposable towel was found to be both inconvenient and time consuming when a daylight loader was used, particularly when the clinic was busy and several students needed to use the processor at the same time. Using an extra pair of disposable gloves during processing, or sealing film packets in plastic coverings before use, increases costs. Furthermore, sealing individual packets in plastic is time consuming and the technique is not practical when large numbers of patients are involved.

Although the hypochlorite immersion technique advocated by Neaverth and Pantera[12] appears to be both practical and effective, the method is not suitable for paper-coated packets.

The best way to prevent cross-contamination from dental X-ray film packets would probably be to place sterile packets in hermetically-sealed plastic envelopes,[10] and then carefully remove these packets from the envelopes prior to opening and processing. This method is time consuming and expensive, however, and some may wish to limit its use to procedures involving high-risk patients, such as those who are known human immunodeficiency virus or hepatitis B virus carriers. Because any patient is potentially "high-risk," however, effective and practical methods for handling contaminated film packets should routinely be employed, regardless of the perceived risk status of an individual patient.

The effectiveness of disinfecting the surfaces of X-ray film packets by wiping them with disinfectant has not been tested. Surveys of infection control procedures at dental schools[9,13-16] or in private dental practices[2] did not address the question of surface disinfection of dental X-ray film packets. There was also no specific mention of this matter in the Centers for Disease Control's recommendations for infection control in dentistry.[17] In addition, a recent article on this topic, published in *JADA,* did not specifically mention surface disinfection of film packets.[18]

Before handling film packets with unprotected hands, the contaminated packets should at least be wiped to remove visible saliva, thereby reducing the number of bacteria on the surface. Wiping saliva off of the surface without using a disinfectant, however, reduces but does not consistently eliminate bacterial contamination. Wiping the surface of saliva-contaminated film packets with disinfectant is more effective than simply wiping the contaminated surface without a disinfectant. The two-wipe method is preferable to the one-wipe technique, since no samples treated with the two-wipe method grew bacteria, while a small number of samples from the one-wipe method were contaminated. When one-wipe samples showed contamination, only anaerobic bacteria grew, suggesting that these bacteria are more resistant to the technique. No firm conclusions can be reached, however, due to the small number of contaminated samples.

The one-wipe method may be almost as effective as the two-wipe method for eliminating or reducing bacterial contamination. The mean of the one-wipe samples (test samples in Experiment Two) is extremely small. In addition, **Table II** shows that only four samples out of 22 grew bacteria. Although wiping the surface of the packet once with disinfectant probably consistently reduces the number of surface bacteria, a small number of bacteria may remain. The second wipe with disinfectant, or the residual chemical that is left on the surface to air dry in the two-wipe method, may eliminate any remaining organisms.

The disinfectants employed in the current study were those generally reported to be acceptable for surface disinfection.[5,7,8,17,19] Experiment One showed that all were equally effective for surface disinfection provided the two-wipe technique was used. Sterile distilled water was apparently as effective as any other recommended disinfectant used in Experiment One. This indicates that adequate wetting of the contaminated surface of a film packet is an important component of the disinfection process. The use of an American Dental Association-accepted surface disinfectant for disinfection is recommended, however, since these have documented evidence of bactericidal, tuberculocidal and virucidal activity.[18]

Neaverth and Pantera's[12] technique of immersing contaminated film packets in a sodium hypochlorite solution prior to processing appears to be considerably simpler than the disinfection techniques described in this paper. However, their method can only be used with poly-coated film packets. Preliminary investigations into the effectiveness of wiping paper- and poly-coated contaminated film packet surfaces with disinfectant suggests that the method may be less effective for paper-coated packets, but this needs to be studied further. In the clinic, it may be most practical to use only poly-coated packets and disinfect them using Neaverth and Pantera's method, but to employ a solution that is more stable than sodium hypochlorite.

The standard deviation between the samples collected and tested in this study was quite large. This was not unexpected, since the number of bacteria in different patients' mouths could vary considerably depending on their oral hygiene, the time that elapsed between oral hygiene procedures or eating and the obtaining of the sample, and the quantity and quality of saliva, etc. Variations in sampling and disinfection techniques, or technical errors in microbiological processing, might also account for some of the large variation in the standard deviation.

This study was inspired by concerns over possible cross-contamination between dental patients as a result of contaminated film packets being developed in the daylight loaders of our film processors. In addition, we hoped to develop a disinfection method that would allow the operator to avoid wearing latex gloves while opening packets and processing them in the daylight loader. This would eliminate or significantly reduce the number of static electricity artifacts occurring on processed radiographs as a result of wearing gloves. Both of these problems need to be investigated further. ■

Dr. Packota *is an associate professor in the department of diagnostic and surgical sciences with the College of Dentistry at the University of Saskatchewan.*

Dr. Komiyama *is a professor in the department of oral biology with the College of Dentistry at the University of Saskatchewan.*

Reprint requests to **Dr. Packota**, *Department of Diagnostic and Surgical Sciences, College of Dentistry, University of Saskatchewan, Saskatoon, Sask. S7N OWO.*

References

1. White, S.C. and Glaze, S. Interpatient microbiological cross-contamination after dental radiographic examination. *JADA* 96:801-804, 1978.
2. Hardie, J. Infection cortrol survey – 1988: A Canadian Dental Association project. *J Canad Dent Assoc* 55:299-301, 1989.
3. American Dental Association. Infection control procedures and products: Cautions and common sense. *JADA* 117:293-301, 1988.
4. Syed, S.A. and Loesche, W.J. Survival of human dental plaque flora in various transport media. *Appl Microbiol* 24:638-644, 1972.
5. American Dental Association, Council on Dental Therapeutics and Council on Prosthetic Services and Dental Laboratory Relations. Guidelines for infection control in the dental office and the commercial dental laboratory. *JADA* 110:969-972, 1985.
6. American Dental Association, Council on Dental Materials, Instruments, and Equipment. Recommendations for radiographic darkrooms and darkroom practices. *JADA* 104:886-887, 1982.
7. American Dental Association, Council on Dental Materials, Instruments, and Equipment, Council on Dental Practice, Council on Dental Therapeutics. Infection control recommendations for the dental office and the dental laboratory. *JADA* 116:241-248, 1988.
8. Canadian Dental Association. Recommendations for infection control procedures. *J Canad Dent Assoc* 55(4) (insert): 1989.
9. Hubar, J.S. Dental radiology asepsis survey. *J Canad Dent Assoc* 55:651-652, 1989.
10. Ash, J.L., LaTurno, S.A.L. and Corcoran, J.F. The use of a sealed plastic bag for radiographic film to avoid cross-contamination. *J Endodont* 10:512-514, 1984.
11. Ciola, B. A readily adaptable, cost-effective method of infection control for dental radiography. *JADA* 117:349, 1988.
12. Neaverth, E.J. and Pantera, Jr., E.A. Chairside disinfection of radiographs. *Oral Surg* 71:116-119, 1991.
13. Sampson, E. and Dhuru, V.B. Infection control in North American dental schools. *J Dent Educ* 47:329-335, 1983.
14. Jones, G.A. Intraoral X-ray film holders and infection control in U.S. dental schools. *J Dent Educ* 49:656-657, 1985.
15. Corbin, S.B., Scarlett, M.I. and Mitchell, E.W. Progress in infection control in dental education. *J Dent Educ* 52:192-197, 1988.
16. Katz, J.O., Cottone, J.A, Hardman, P.K. et al. Infection control in dental school radiology. *J Dent Educ* 53:222-225, 1989.
17. Centers for Disease Control. Recommended infection-control practices in dentistry. *MMWR* 35:237-242, 1986.
18. Cottone, J.A. and Molinari, J.A. State-of-the-art infection control in dentistry. *JADA* 123:33-41, 1991.
19. Molinari, J.A., Gleason, M.J., Cottone, J.A. et al. Cleaning and disinfectant properties of dental surface disinfectants. *JADA* 117:179-182, 1988.

The 13th Annual

Hawaiian Dental Forum

ENJOY A VACATION...
CONTINUE YOUR EDUCATION

AN INTERNATIONAL CONTINUING EDUCATION EVENT

Maui
Jan. 30 - Feb. 6, 1993
Royal Lahaina Resort

Kauai
February 6-13, 1993
Sheraton Kauai Resort

- Interesting current topics presented by well credentialed speakers in morning sessions.
- Special hotel and seminar arrangements for your family, staff, and friends, including FREE buffet breakfast for resort guests.
- 18 lecture hours per week, including CPR training and certification.

The 6th Annual
Humanitarian & Educational Expedition

BOLIVIA / BRAZIL

March 5-19, 1993

- Educators to provide dental training and lecture at nationally attended university programs.
- Practitioners to provide dental health care and educational services for orphans and street children in Bolivia.
- Co-hosted by local Rotary Clubs, university faculty, professional groups and the Maryknoll Missioners.
- Non-sectarian, non-political, and non-profit.

For travel information, contact:
CHIPPEWA VALLEY TRAVEL SERVICE
Chippewa Falls, Wisconsin 54729 USA
Call toll free: 1-800-826-6644 (ALL USA & CANADA)

Name _____

Address _____

City/State _____

Zip_____Phone_____

Send information on: ☐ Hawaii ☐ Latin America.
Put me on your mailing list for next year ☐.

Sponsored by/Mail to:

Dental Seminars & Symposia, Inc.
343 Prairie View Road
Chippewa Falls, Wisconsin 54729 USA
Telephone & Fax: (715) 723-1662

VISIT US AT THE ADA ANNUAL SESSION

Facial neuralgias: A clinical review of 34 cases

J.H.P. Main, BDS, PhD, FRC (Path), FRCD(C)
R.C.K. Jordan, DDS, M.Sc.
R. Barewal
Toronto

Introduction

The diagnosis of facial pain presents a recurring challenge to the general dentist. The vast majority of these cases are caused by diseases of odontogenic origin, pulpitis being the most common, while a substantial minority are due to abnormalities of the temporomandibular joint. Chronic facial pain due to maxillary sinusitis is less common than the manufacturers of over-the-counter medicines would have the public believe.

A small number of chronic orofacial pain cases are caused by one or other of the facial neuralgias, namely trigeminal, spheno-palatine (cluster headache), atypical facial, glossopharyngeal or post herpetic. Because of their infrequency, and as they have no visible clinical features, this group is difficult for the primary health care provider to diagnose with certainty. For these reasons, patients are often referred to oral pathologists or to neurologists for investigation and treatment.

This paper will review the salient clinical features of facial neuralgias, and report on the demographic data for a group of cases seen consecutively over a three-month period – through referral to the senior author – at the Sunnybrook Health Science Centre in Toronto.

Clinical Features of the Facial Neuralgias

The facial neuralgias most often encountered in dental practice are trigeminal neuralgia, cluster headache and atypical facial neuralgia (also known as atypical facial pain). Each of these disorders has a unique pattern of clinical features. Owing to the paucity of physical signs and radiographic changes associated with facial neuralgias, the diagnostician must rely almost entirely on the description of the symptoms provided by the patient. Therefore, every effort must be made by the clinician to document the chronology of the disorder, the quality and intensity of the pain, and any factors that precipitate or alter it. Without an accurate history and careful clinical examination, patients with orofacial pain may be misdiagnosed and inappropriately managed.

Trigeminal neuralgia is an episodic condition characterized by the occurrence of a very severe, sharp, lancinating pain. Patients often describe their symptoms as being similar to what they would feel if an electric charge was shooting along the distribution of one or other of the major divisions of the trigeminal nerve, or if a hot knife was applied to the area. Periods of exacerbation usually last for approximately two to four months, with longer periods of complete remission. The length of these remissions tends to diminish with the amount of time the condition has been present. When the disorder affects the maxillary or mandibular divisions of the trigeminal nerve, the sharp bursts of pain are often confused with toothache, both by the patient and the health practitioner. Some patients may have several perfectly healthy teeth filled, refilled, treated endodontically or extracted in a futile attempt to rid themselves of the pain.

Trigeminal neuralgia is more common in the sixth and seventh decades of life, with women affected slightly more often than men.[2] Cases are occasionally seen in younger people in association with multiple sclerosis, where trigeminal neuralgia occurs in one to two per cent of patients.[3] Usually, the pain of trigeminal neuralgia may be elicited by touching a specific area of the face or mouth, which is referred to as the trigger zone. Provocation of the trigger zone may require a touch so slight as to cause the patient to stop brushing the teeth in that area, or to keep a male patient from shaving. Interestingly, the right side of the face is more frequently affected than the left, with very few patients having a bilateral distribution.[4] The pain usually lasts for only a few seconds, and may be followed by a much milder aching or burning sensation in the same area, which persists for some minutes. Spontaneous remissions occasionally occur.[4] The drug of choice to manage this condition is carbamazapine, an anti-convulsant. The dosage is titrated to control the attacks.

Cluster headache (spheno-palatine neuralgia) is a disorder that affects males more often than females, and starts between the ages of 20 and 50. This type of headache is thought to be more common in individuals with hard-driving, highly-strung personalities.[5] It is also episodic, with periods of pain lasting for about two months (the clusters) and longer remissions. Cluster headache has a tendency to annual recurrence. The discomfort is typically described as an intense, unilateral, boring pain that involves the periorbit, temple and maxilla. Mild lacrimation, nasal congestion and facial sweating of the affected side are features of this disorder, and ptosis with narrowing of the pupil may occur. The pain is usually precipitated by alcohol and often occurs regularly at specific times of the day or night. Uniquely, in this disorder the attacks may wake the patient from sleep, often at the same time of night, accounting for the term "alarm clock headache." The episodes of pain are self-limiting and usually last from 15 to 60 minutes in the early stages, but may extend up to several hours in long-standing cases. Many medications have been used in the past to treat acute cluster headache, including oxygen, lithium, steroids and various analgesics, all with varying degrees of success. Ergotamine and methysergide are now recognized as the most effective agents for controlling the symptoms of cluster headache.[6]

Patients with atypical facial neuralgia typically complain of a constant, unyielding and sometimes burning, deep-seated pain that can affect any part of the face, but usually involves the

upper or lower jaws. The pain is not well localized and may cross the midline, occasionally radiating to affect the cranium, neck and arms. Patients often report that the pain is present both in the daytime and at night.[7] Those afflicted with this poorly understood condition may have received numerous therapeutic procedures in the past, none of which provided relief. In a large majority of patients, and perhaps in all, atypical facial neuralgia is a manifestation of depression. Tricyclic antidepressants are the mainstay medications for managing this disorder.[8,9] While these drugs relieve the pain, the side effects, in particular drowsiness, may be annoying.

In glossopharyngeal neuralgia, the pain is felt in the posterior tongue and oropharynx. It is usually short, sharp, and precipitated by swallowing. In most cases, this condition is caused by a malignant tumor in the base of the tongue or pharynx, hence, investigation of the soft tissues of this area through indirect pharyngoscopy, CT scans and/or magnetic resonance imaging is mandatory.

Post-herpetic neuralgia occurs in a small proportion of patients following herpes zoster infection of the trigeminal nerve. The pain is constant, may be severe, and is usually described as burning. It is difficult to control and there is no specific medication available to do so. Both glossopharyngeal and post-herpetic neuralgias are rare.

Material and Methods

A retrospective case analysis was undertaken of 34 patients who were consecutively referred to the dental department at Sunnybrook Health Science Centre, over a three-month period in 1991.

The data collected included patient age, sex, duration of symptoms, presenting symptomatology, prior treatment, concurrent medications and final diagnosis. Patients excluded from the study were those with odontogenic infections, sinusitis, temporomandibular joint conditions and/or any other non-neurological cause of facial pain.

Results

A total of 34 patients fulfilled the criteria for inclusion in the study (**Table I**). There were seven cases of trigeminal neuralgia, two of cluster headache, 24 of atypical facial neuralgia and one of glossopharyngeal neuralgia. Of the seven patients with trigeminal neuralgia, one was also afflicted with multiple sclerosis and all were female. Both patients with cluster headache were male. Of the patients with atypical facial neuralgia, 23 were female and only one was male. The patient with glossopharyngeal neuralgia was a 65-year-old female.

The mean age for patients with trigeminal neuralgia was 63 (range 49 to 80 years of age), 45 for those with cluster headache (range 27 to 63 years of age), and 47 for those with atypical facial neuralgia (range 26 to 73 years of age). The average duration of symptoms prior to patient presentation varied. For patients with atypical facial neuralgia, the shortest duration was 30.1 months (range 1-120 months).

Almost all patients with trigeminal and atypical facial neuralgia had received prior drug therapy. Two of the seven patients with trigeminal neuralgia were already taking carbamazapine. Similarly, a variety of medications had been previously prescribed for most patients with atypical facial neuralgia, including analgesics, non-steroidal anti-inflammatory agents (NSAIDS), antibiotics, sedatives, anticonvulsants and carbamazepine. Tricyclic anti-depressants (TCA) had been prescribed earlier in just two of these cases. One of the cluster headache patients had previously been on ergotamine.

Three patients with trigeminal neuralgia had undergone previous dental extractions in attempts to relieve the discomfort. Five patients with atypical facial neuralgia had also undergone extractions, 13 had received endodontic treatment and five had sought relief from their complaint through the placement of fillings. Seven patients with atypical facial neuralgia and one with trigeminal neuralgia had received previous temporomandibular joint treatment. The patient with glossopharyngeal neuralgia had also been diagnosed elsewhere as having temporomandibular joint dysfunction.

Thirty per cent of the group with atypical facial neuralgia gave a history of having had psychiatric treatment for depression in the past, whereas none of the patients in the other groups had received such treatment.

Descriptions of the type of pain suffered by the patients varied greatly, and included adjectives such as throbbing, dull, sharp, shooting or boring.

TABLE I

Summary of Results

	Trigeminal neuralgia	Cluster headache	Atypical facial pain
Number of patients	7	2	24
Males	0	2	1
Females	7	0	23
Mean age and range (years)	63 (49-80)	45 (27-63)	46.8 (26-73)
Duration of symptoms and range (months)	74.2 (3-180)	48.5 (1-96)	30.1 (1-120)
Quality of pain:			
throbbing	1	1	1
dull	3	0	17
sharp	6	1	8
shooting	3	0	1
boring	1	0	2
Prior treatments received for facial pain:			
Dental fillings	0	0	5
Endodontics	0	0	13
Dental extractions	3	0	5
TMJ treatment	1	0	7

Trigeminal neuralgia was described as causing a sharp or stabbing pain by all patients.

A trigger zone could only be identified in five of the seven patients with trigeminal neuralgia, and in most cases this area was located in the snout region of the face. The trigger zone of a single patient with trigeminal neuralgia was found in the ear in the distribution of the auriculo-temporal nerve.

The factors that precipitated or aggravated the pain of trigeminal neuralgia included chewing (two patients) and drinking (one patient). Neither of the patients with cluster headache reported that alcohol ingestion precipitated their attacks, but one patient reported that alcohol worsened the pain once it had started. A variety of factors were reported to exacerbate the discomfort of atypical facial neuralgia, including bending (one patient), shaking the head (two patients), chewing (four patients), drinking (two patients) and stress (one patient), but in the majority of cases there were no precipitating or exacerbating factors.

The patient with glossopharyngeal neuralgia had no detectable clinical abnormalities on inspection, palpation or indirect pharyngoscopy. She was referred for further investigation to an otolaryngologist and a tumor was found, on CT scan, in the substance of the posterior third of the tongue. A biopsy, performed under general anesthesia, revealed that the lesion was an adenoid cystic carcinoma.

Discussion

As there are no clinically demonstrable abnormalities in most of the facial neuralgias, except in the rare case of glossopharyngeal neuralgia where a tumor may be visualized or palpated, and in cluster headache during attacks, the diagnosis of all these conditions depends entirely on obtaining a full and accurate history. The clinician must develop a rapport with each patient and engage in a sympathetic dialogue, which may take a considerable amount of time, in order to elicit the necessary information. Patients in pain are often in an emotional state during the interview and examination, and due account must be given to this. Some patients will exaggerate aspects of their symptoms to convey the severity of their pain to the clinician. This is typically seen in trigeminal neuralgia, where patients often indicate that the lancinating pain lasts for much longer than the few seconds it is actually present.

Many patients with facial neuralgia believe that their pain is of dental origin, and demand that something be done to their teeth to alleviate the discomfort. Often, these patients insist that the extraction of one or more teeth is essential. It is common for patients with this delusion to consult several dentists in turn. Other patients believe that their pain originates in the temporomandibular joint, while some self diagnose their condition as being due to maxillary sinusitis.

After a tentative clinical diagnosis of facial pain has been made, all patients should undergo a radiographic examination of the relevant areas of the face and jaws to rule out any other condition that may be contributing to or causing the symptoms. In cases of atypical neuralgia, we have made it a routine practise to obtain a CT scan of the base of the brain and upper face to eliminate the possibility that a deep seated tumor has invaded a nerve. To date, no tumors have been found in these areas. However, as patients suffering from atypical neuralgia seldom provide as clear cut a history as those suffering from other types of neuralgias, we believe that the CT scan procedure should be continued.

In this study, while the seven patients with trigeminal neuralgia represent a small group, they ranged in age from 49 to 80 years, which is in agreement with most other studies.[1,11] Although Drinnan[6] reported only a slightly greater prevalence of the condition in women, no men were present in our study. This discrepancy may be a reflection of the small sample size. Both patients with cluster headache were males, a condition typically reported to affect males more often than females.[12] Twenty-three of the 24 patients with atypical facial neuralgia were females, a finding that is in agreement with other studies, which report a female-to-male ratio ranging from 19:1 to 7:1.[7]

An interesting observation was that only five of the seven patients afflicted with trigeminal neuralgia reported having a trigger zone, with one patient noting a trigger zone located in the ear. No cases of post-herpetic neuralgia occurred in these series, which is an indication of the rarity of this condition.

A number of authors[8,9,13] have discussed the association between atypical facial neuralgia and psychological depression. Glaser (1928)[14] was the first to report this finding. Rasmussen[9] found psychological symptoms in 33 per cent of his cases, although most of this group believed that their depression was caused by pain, and not vice versa. In our group of 24 patients with atypical facial neuralgia, almost one-third gave a history of having had treatment for depression. No attempt was made to determine the psychological profiles of the patients in this study, thus the proportion of individuals suffering from demonstrable depression cannot be determined. However, the demeanor of most of these patients conveyed a distinct impression of depression.

Once a diagnosis of atypical facial neuralgia has been made, we routinely refer patients to their family physicians for future management, generally with a tricyclic antidepressant as primary therapy. To date, none have reported that this medication has failed to control their pain, but many complain of the side effects induced by the medication, particularly of persistent drowsiness.

Summary

This paper reviewed the clinical features of the facial neuralgias, and described the demographic data for 24 cases of atypical facial neuralgia, seven cases of trigeminal neuralgia, two cases of cluster headache and one of glossopharyngeal neuralgia, which were all referred for investigation and treatment over a three-month period to a teaching hospital dental department.

Acknowledgements: **Dr. Jordan's** *research is supported by a Sunnybrook Health Sciences Centre research fellowship.* **R. Barewal** *was assisted by a Sunnybrook Health Sciences Centre summer research studentship.*

Dr. Main *is professor and chairman of the department of oral pathology, faculty of dentistry, at the University of Toronto, and head of the department of dentistry at Sunnybrook Health Science Centre.*

Dr. Jordan *is a senior resident in oral pathology in the faculty of dentistry at the University of Toronto.*

R. Barewal *is a dental student at the University of Toronto.*

Reprint requests to: **Dr. J.H.P. Main,** *Department of Oral Pathology, Faculty of Dentistry, University of Toronto, 124 Edward St., Toronto, Ont. M5G 1G6.*

References

1. Loeser, J.D. Cranial neuralgias. In: *The Management of Pain*, 2nd. ed. Bonica, J.J. (ed). Philadelphia, Lea & Febiger, p. 681, 1990.

2. Donlon, W.C., Jacobson, A.L. and Truta, M.P. Neuralgias. *Otolaryngol Clin N Am* 22:1145-1158, 1989.
3. Fromm, G.H. Trigeminal neuralgia and related disorders. *Neurol Clin* 7:305-319, 1989.
4. Zakrzewska, J.M. Medical management of trigeminal neuralgia. *Br Dent J* 168:399-402, 1990.
5. Manzoni, G.C., Terzanom, G., Moretti, G. et al. Clinical observations on cluster headache cases. *Eur Neurol* 20:88-94, 1981.
6. Drinnan, A. Differential diagnosis of orofacial pain. *Dent Clin N Am* 31:627-643, 1987.
7. Solomon, S. and Lipton, R.B. Atypical facial pain: A review. *Sem Neurol* 8:332-338, 1988.
8. Dalessio, D.J. Some reflections on the etiologic role of depression in head pain. *Headache* 8:28-31, 1968.
9. Rasmussen, P. Facial pain IV: a prospective study of 1052 patients with a view of precipitating factors, associated symptoms, objective psychiatric and neurologic symptoms. *Acta Neurochir (Wein)* 108:100-109, 1991.
10. Rushton, J.G., Stevens, J.C. and Miller, R.H. Glossopharyngeal (vasoglossopharyngeal) neuralgia. *Arch Neurol* 38:256-259, 1981.
11. Wepsic, J.G. Tic doloroureux: Etiology, refined treatment. *N Engl J Med* 288:680-681, 1973.
12. Keith, D.A. Differential diagnosis of craniofacial pain. *Cranio Clin Int* 1:173-184, 1991.
13. Blumer, D. and Heilbronn, M. The pain-prone disorder: A clinical and psychological profile. *Psychosomatics*. 22:395-398, 1981.
14. Glaser, M.A. Atypical neuralgia, so called: A critical analysis of 143 cases. *Arch Neurol Psychiat* 20:537-540, 1928.

Raise the Flag!

If you appreciate your fellow Canadians and the riches and freedom we are so fortunate to share, then raise the flag on Canada's first *Raise the Flag Day*, Saturday, September 26, 1992.

There's so much to look up to.

Brånemark System®

Authorized BRÅNEMARK SYSTEM® Dental Laboratories

Take Advantage of our Experience . . .

Aurum Ceramic Dental Laboratories Ltd.
Vancouver, British Columbia
1-800-663-1721

Aurum Ceramic Dental Laboratories Ltd.
Victoria, British Columbia
(604) 595-2314

Aurum Ceramic Dental Laboratories Ltd.
Calgary, Alberta
1-800-661-1169

Aurum Ceramic Dental Laboratories Alberta Ltd.
Edmonton, Alberta
(403) 423-1904

Aurum Ceramic Dental Laboratories (Sask) Ltd.
Saskatoon, Saskatchewan
(306) 665-8815

Bourque et Robert Inc.
Montreal, Quebec
1-800-561-6242

Canadian Associated Laboratories - St. John's
St. John's, Newfoundland
(709) 726-7686

Central Dental Laboratories (Barrie) Limited
Barrie, Ontario
1-800-461-7559

Classic Dental Laboratories Ltd.
Ottawa, Ontario
1-800-267-7040

De Luca Dental Laboratories
Willowdale, Ontario
1-800-268-6657

E. J. Pow Laboratories Inc.
Woodstock, Ontario
(519) 539-2065

Hub Dental Lab Ltd.
Moncton, New Brunswick
(506) 857-0465

Laboratoire Dentachrome Inc.
Quebec, Quebec
(418) 626-8888

Laboratoire Dentaire M.J. Inc.
Chicoutimi, Quebec
(418) 545-4155

Laboratoire Dentaire Morisset Inc.
Quebec, Quebec
(418) 529-9219

Laboratoire Dentec Inc.
Charlesbourg, Quebec
(418) 628-5039

Lafond & Marston Inc.
Outremont, Quebec
(514) 272-1158

Lafond, Desjardins et Associes Inc.
Laval, Quebec
(514) 669-9221

Le Groupe Dent-Esthérium
Ville St. Laurent, Quebec
(514) 744-4442

Lindberg & Homburger Dental Laboratories Ltd.
Toronto, Ontario
1-800-387-0092

Microdent Laboratories Ltd.
Woodbridge, Ontario
1-800-267-4292

Pro-Art Dental Laboratory Limited
Toronto, Ontario
1-800-268-6771

Pro-Dent Laboratory Ltd.
Halifax, Nova Scotia
(902) 422-8531

R. A. Baillie Oral Ceramiques Inc.
Ville St. Laurent, Quebec
(514) 748-7619

Rotsaert Dental Laboratory
Hamilton, Ontario
(416) 527-1422

Shaw Group
Toronto, Ontario
(416) 977-0700

. . . an invaluable part of your implant team

BRÅNEMARK SYSTEM® *is a registered trademark of Nobelpharma AB.*

Risques et bénéfices de l'ablation des troisième molaires incluses: Revue critique de la littérature – Partie 1

David S. Precious, DDS, M.Sc., FRCD(C), FICD, Dip. ABOMFS
Halifax, N.S.
Paul Mercier, DDS, FRCD(C), Dip. ABOMFS
Montreal
François Payette, DMD
Québec, Qc

SOMMAIRE

Étant donné l'enthousiasme sans cesse grandissant des nouveaux gradués pour la chirurgie buccale mineure, les auteurs ont cru bon de traduire les résultats d'un projet de recherche fait en 1990 par les docteurs David S. Precious et Paul Mercier, chirurgiens buccaux et maxillo-faciaux de renommée. Ce travail traite des risques et bénéfices de l'ablation des troisième molaires incluses.

Mots clés

Troisième molaires incluses, risques et bénéfices.

ABSTRACT

Because of the ever-increasing enthusiasm that new graduates have demonstrated for practising minor oral surgery procedures, the authors believed that it would be useful to translate the results of a research project done in 1990 by Drs. David S. Precious and Paul Mercier, who are well-known oral and maxillofacial surgeons. This paper is about the risks and benefits associated with the removal of impacted third molars.

Key Words

Impacted third molars, risks and benefits.

Introduction

La Fondation pour l'Avancement de l'Éducation et la Recherche de l'Association canadienne des chirurgiens buccaux et maxillo-faciaux a choisi comme premier projet «une revue critique de la littérature sur la prise en charge des troisième molaires incluses.» Ce sujet a été choisi étant donné que l'extraction des troisième molaires incluses (M3) est l'acte chirurgical le plus souvent accomplit par les chirurgiens buccaux et maxillo-faciaux. Par conséquent, la Fondation s'est ici consacrée à présenter une version objective des faits en dépit de la complexité et de l'exhaustive littérature sur ce sujet. Ce travail, déjà publié en anglais (Mercier P. and Precious D.S. Risks and benefits of removal of impacted third molars. *Int J. Oral Maxillofac Surg.* Accepted for publication), est le résultat du raffinement de plusieurs centaines d'articles, de textes, de rapports, le produit final étant le «modus vivendi.» Ce sujet est abondamment documenté, néanmoins, les études prospectives bien menées se font rares.

Les troisième molaires représentent les inclusions les plus fréquentes (Bjork 1956). Le dilemme clinique se pose donc, à savoir, doit-on délibérément conserver les dents incluses asymptomatiques ou les extraire? Or, qu'elle attitude le chirurgien prudent et responsable, soucieux du bien-être de son patient, doit-il adopter?

Comme plusieurs autres situations cliniques, les troisième molaires incluses représentent plus un problème de prise en charge que de thérapeutique en soi. Même si plusieurs troisième molaires asymptomatiques sont des découvertes fortuites d'examens radiographiques, il n'en reste pas moins que la douleur est fréquemment le seul symptôme évoqué. Ainsi, le chirurgien doit adopter une approche systématique, orientée vers le patient afin de maximiser les bénéfices thérapeutiques pour chaque individu.

Quels sont les risques encourus par le patient qui conserve une troisième molaire incluse? Quel est le rapport risque/bénéfice de l'intervention chirurgicale? Ces deux questions représentent la pierre angulaire qui nous permettra, espérons-le, d'établir clairement les indications et les contre-indications autant pour la conservation que pour l'extraction chirurgicale. Une indication à l'extraction chirurgicale d'une M3 doit-être secondée par une contre-indication à la conservation de celle-ci et vice-versa.

Lors de la conférence du NIH en 1979, un consensus sur l'extraction des troisième molaires comprenait:

1. Il existe des critères bien établis pour l'extraction des M3; infection, lésion carieuse non-restaurable, kyste, tumeur.

2. Il est prouvé que la morbidité post-opératoire est moindre chez les jeunes que chez les gens plus âgés.

3. Les études actuelles sur les courbes de croissance ne sont pas assez précises pour justifier une décision clinique.

À cette époque, le besoin d'études objectives et longitudinales se fit sentir et depuis, plusieurs études ont été publiées. Le débat sur l'ablation des M3 asymptomatiques fût relancé de plus belle par Stephens (1989) de la division de radiologie buccale et médecine buccale de l'Université de Western Ontario ainsi que par tous les commentaires suscités par cette parution.

À l'opposé de la croyance populaire voulant que l'ablation des troisième molaires incluses asymptomatiques et non-pathologiques était discutable voir même contestable, se faisaient entendre quelques voix dissidentes. Un chirurgien buccal déclarait qu'il est le spécialiste tant recherché lorsque vient le temps d'exécuter des extractions rendues difficiles justement par des procédures constamment reportées. Un professeur de médecine buccale d'une autre

institution, prédisait qu'une approche conservatrice ne ferait qu'augmenter l'incidence de péricoronite et la morbidité associée à une ablation tardive. Un orthodontiste mentionnait que la présence de chevauchement antérieur avait été négligé étant donné que les articles publiés après la conférence du NIH n'étaient pas rapportés dans le papier de Stephens (1989).

Le but de cette parution-ci est de revoir la littérature scientifique traitant des troisième molaires en regard des risques et bénéfices de l'intervention versus la non-intervention, de façon à ce que le praticien puisse mieux servir sa clientèle. Cette revue est organisée en quatre sections comme suit:

I. Risques de la non-intervention

A. Chevauchement de la dentition basé sur les prévisions de croissance.

B. Résorption de la dent adjacente et condition parodontaire.

C. Développement de pathologies (infection, kyste, tumeur).

II. Risques de l'intervention

A. Mineur et temporaire: altération de nerfs sensitifs, alvéolite, trismus, infection, hémorragie, fracture dento-alvéolaire et déplacement dentaire.

B. Mineur et permanent: lésion parodontaire, traumatisme à la dent voisine, lésion à l'articulation temporo-mandibulaire.

C. Majeur: dysesthésie, infection d'organes vitaux, fracture de la mandibule et de la tubérosité, blessure et litige.

III. Bénéfice de la non-intervention

A. Prévention des risques de l'intervention.

B. Conservation des dents potentiellement fonctionnelles.

C. Maintien de la crête alvéolaire.

IV. Bénéfices de l'intervention

A. En relation avec l'âge.

B. En relation avec les différentes approches thérapeutiques.

I. Risques de la non-intervention

A. Croissance, développement, chevauchement de la dentition

La troisième molaire incluse n'est pas seulement une entité radiographique, comme plusieurs études le démontraient. Ce n'est pas non plus une question de connaître l'épaisseur critique de l'épithélium odontogénique avoisinant (Concklin 1949).

La présence des M3 est intimement reliée à la croissance et au développement des mâchoires et des dents. Bjork (1956) démontrait que l'inclusion de la troisième molaire mandibulaire était en fait causée par une difformité dento-squelettique particulière impliquant une insuffisance dento-alvéolaire mandibulaire. Pour bien estimer la fréquence des inclusions des troisième molaires, il faut d'abord bien définir le terme «inclusion» l'âge du patient examiné et sa condition dentaire. Est-ce qu'une M3 chez un patient de 14 ans est incluse ou tout simplement n'a pas encore fait émergence?

Formation dentaire et éruption

«From a biological aspect, the coming of the third molar teeth constitutes that part of the installment of our dental equipment which established the adulthood of our dentition» (Hellman 1936). L'éruption déplacera successivement la M3 mandibulaire de la branche montante, visible alors à l'âge de 7 ans comme une crypte, à l'étape de la minéralisation de la couronne (9-12 ans), suivie par la descente et l'inclinaison de la couronne sous les autres molaires et enfin à son redressement soit en position verticale, horizontale, mésio-angulaire ou disto-angulaire et ce pendant la formation de la couronne (Bjork 1983, Richardson 1981). Pendant la formation de la racine, entre 16 et 18 ans, la M3 se déplacera antérieurement (Broadbent 1943, Altonen 1977). La fermeture de l'apex se fait entre 18 et 25 ans. La maturation dentaire peut coïncider avec la fin de la croissance squelettique, néanmoins on peut retrouver un potentiel pour l'éruption dentaire jusqu'à la fin de l'âge adulte (Rantanen 1961, Weiss 1984, Von Wowern 1989, Sewerin 1990) et même au-delà de la cinquième décennie, particulièrement pour les molaires supérieures (Garcia 1989).

Prévision de la position finale de la M3

Peut-on prévoir l'espace disponible pour l'éruption par l'analyse de la courbe de croissance de chaque individu? Cette question revêt une importance capitale étant donné qu'une telle prévision nous permettrait d'extraire ou non les troisième molaires sur une base prophylactique.

Bjork (1956) observait que l'espace entre la branche montante et l'aspect distal de la deuxième molaire était réduit et donc associé à une plus forte présence d'inclusion de la M3 quant (par ordre d'importance):

1. La croissance condylienne est verticale.

2. La croissance en longueur de la mandibule est faible.

3. On assiste à un plan d'éruption postérieure de la dent.

4. La maturation de la M3 est retardée.

Richardson E.R. (1984) notait que l'éruption de la M3 dépend davantage de la largeur de la dent et du manque d'espace que du manque d'espace seul. Il déclarait que l'éruption de la M3 ne peut être déterminée avant l'âge de 15-16 ans étant donné la multiplicité de facteurs. Il a observé des inclusions de troisième molaires en dépit d'espace suffisant. Richardson M.E. (1977, 1981, 1985, 1987, 1989) déclarait qu'autant la résorption de la branche montante que le glissement antérieur de la dentition fournissaient l'espace nécessaire pour la M3. Lorsqu'il y a une résorption importante de la branche montante, le glissement antérieur de la dentition est moindre. Elle concluait comme l'a aussi fait Grabert (1981), qu'il est impossible de prédire l'espace disponible durant le jeune âge.

Mesures radiographiques

Richardson (1987) tentait comme plusieurs autres, de prévoir l'espace disponible à partir de radiographies latérales du visage. Aucune corrélation fut établie entre l'angle gonial et l'espace disponible, par contre, elle appuyait l'hypothèse de Bjork sur la croissance condylienne verticale en remarquant que l'espace pour la M3 était fonction de la distance entre le condyle et le point pogonion. Altonen (1977) ne pouvait faire correspondre l'angle B (intersection entre l'axe long de la M3 et celui de la M2) avec l'angle gonial, néanmoins il déclarait que lorsque l'angle B est inférieur à 10°, les conditions d'éruption sont favorables. Ricketts (1972, 1979) conseillait la germectomie à l'âge de 10-12 ans si la M3 se trouvait à mi-chemin entre l'intersection du plan occlusal et la courbure inférieure de la partie

antérieure de la branche montante. De plus, il disait que si la distance du point central de la branche montante à la surface distale de la M2 est de 20 mm le pronostic est pauvre; à 25 mm il y a 50 p. cent de chance d'éruption; à 30 mm, le pronostic est excellent.

Le clinicien doit utiliser les radiographies avec parcimonie lorsque vient le temps de décrire une situation temporelle et spatiale. Richardson (1984) notait que l'inclusion de la M3 est plus fréquente lorsque la dent est buccalée et suggérait ainsi l'utilisation de vues antéro-postérieures pour une meilleure évaluation. Svendsen (1985) démontrait à partir de deux vues frontales, l'une au stage de formation de la bifurcation et l'autre deux ans plus tard, un plus grand risque d'inclusion lorsque l'angle formé par le long axe de la M3 avec l'axe médian du crâne, devenait plus aigu.

Chevauchement de la dentition

La croissance crânio-faciale et le développement de la troisième molaire sont intimement associés avec le chevauchement de la dentition, particulièrement celui des incisives mandibulaires. L'extraction prophylactique des troisième molaires incluses dans l'unique but de prévenir le chevauchement antérieur engage sans cesse une polémique. Bergstrom (1960) examina 30 étudiants atteints d'agénésie unilatérale de la troisième molaire mandibulaire et découvra plus de chevauchement antérieur du côté où la troisième molaire était présente. Vego (1962) étudia 65 cas et nota davantage de chevauchement là où les troisième molaires étaient présentes. Schwartz (1975) démontra que la germectomie de la M3 est associée avec une diminution de la migration mésiale des M1 et une diminution du chevauchement mandibulaire lorsque comparée avec des patients chez qui l'on permettait le développement complet des M3. Lindquist (1982) procéda à l'ablation unilatérale des M3 et nota une réduction du chevauchement de ce côté dans 70 p. cent des cas lorsque comparés au côté témoin.

D'autres études cependant, n'établirent aucune corrélation. Shanley (1962) démontrait que les M3 mandibulaires n'ont aucune influence sur le chevauchement des incisives inférieures, quoique cette étude comportait un faible échantillonnage. Cette même faiblesse se retrouva dans l'étude de Kaplan (1974), lequel nota aucune différence. Richardson (1987, 1988, 1989) supportait l'hypothèse que les M3 mandibulaires, contribuent au chevauchement mandibulaire. Elle n'écartait pas cependant la possibilité que d'autres facteurs puissent contribuer aussi au chevauchement et ce, même en présence de M3.

Stephens (1989), après avoir revu la littérature, déclarait: «Clearly, the removal of erupting third molars to prevent crowding of lower incisors lacks scientific support.» Cet énoncé fût d'ailleurs vivement supporté récemment par une étude prospective bien menée par Ades (1990). Ils concluent en disant que l'ablation des troisième molaires mandibulaires, pratiquée dans le but de soulager ou prévenir le chevauchement à long terme des incisives mandibulaires n'est peut-être pas justifiée.

B. Résorption de la seconde molaire (M2) et condition parodontaire

Résorption radiculaire

Comme il a été mentionné dans les livres et articles de chirurgie buccale et de pathologie buccale, des inclusions horizontales et mésio-angulaires peuvent causer dommage aux dents adjacentes (Howe 1960, 1985, Shafer 1984, Assaz 1982), mais il est aussi reconnu qu'il est difficile de distinguer un artéfact radiographique d'une véritable résorption radiculaire sauf dans les cas extrêmes (Worth 1969, Wuehrmann 1981).

Récemment, certaines études rétrospectives et prospectives ont été publiées sur le sujet (Nitzan 1981). Seulement quatre cas (2 p. cent) de résorption radiculaire extensive de la M2 ont été trouvés parmi 199 inclusions et aucun dans le groupe d'âge de 30 ans et plus. Des radiographies normales de M2 ont été visualisées suite à l'extraction de M3 alors qu'on diagnostiquait en pré-opératoire des résorptions radiculaires minimes. Nordenram (1987) dans une vaste étude, quoique moins bien contrôlée sur les indications pour l'ablation de 2 630 troisième molaires mandibulaires, notait une résorption radiculaire de la seconde molaire dans seulement 4.7 p. cent des cas.

Stanley (1987) étudia 11 598 radiographies panoramiques et nota une incidence de 3.05 p. cent. Ces études prospectives de Von Wowern (1989) et Sewerin (1990) menées sur des étudiants en médecine dentaire, ne rapportaient aucun cas de résorption radiculaire de la M2 après quatre ans. Une incidence de moins de 1 p. cent était rapportée dans une enquête récente et similaire auprès de patients ayant un âge moyen de 38 ans (Lysell 1989). L'évaluation radiographique de 1 211 M3 faite à partir de patients d'âge moyen, révélait une incidence de résorption radiculaire s'évaluant à 1 p. cent pour le maxillaire et 1.5 p. cent à la mandibule (Eliasson 1989).

Condition parodontaire

Une incidence d'environ 1 p. cent de parodontite ou de résorption alvéolaire marquée au distal de la seconde molaire était rapportée auprès de jeunes adultes (Lysell 1989, Von Wowern 1989, Eliasson 1989) et de patients plus âgés (Grondhal 1973, Guralnick 1982). Dans l'étude radiographique impressionnante de Stanley (1987) l'incidence se chiffrait à 4.4 p. cent. Dans une autre étude (Bruce 1980), les constatations parodontaires pour l'extraction des troisième molaires mandibulaires étaient plus élevées chez les patients de 35 ans et plus. Garcia (1989) dénota la présence de parodontite active autour de toutes les troisième molaires faisant éruption tardive chez des vétérants de guerre. Qu'advient-il de l'hygiène buccale dans pareils cas? Ce facteur pourrait expliquer, en partie du moins, les faibles résultats de Von Wowern (1989) dans son étude faite à partir d'étudiants dentaires, lesquels avaient probablement une hygiène dentaire méticuleuse à l'opposé de l'étude de Garcia où l'on pouvait sans doute s'attendre à trouver une hygiène dentaire déplorable.

Il est difficile de comparer des résultats de différentes études lorsque celles-ci utilisent, et ce, pour la même condition, des définitions variées, ou bien lorsque les groupes d'âge ne sont pas les mêmes ou encore lorsque les populations étudiées sont hétérogènes. Il est aussi normal de prévoir un approfondissement des poches parodontaires avec l'âge et/ou le manque d'hygiène buccale.

Dans l'étude de Nitzan (1981) le fait d'avoir obtenu des rémissions complètes de résorption radiculaire minime de la M2 une fois l'extraction de la M3 réalisée, et d'avoir eu autant de divergence d'opinions concernant les incidences rapportées ne fait que renforcer l'idée voulant que souvent, un artéfact radiographique peut être mépris pour un phénomène de résorption radiculaire

minime. En ce qui a trait aux résorptions radiculaires évidentes, des études récentes mentionnées ci-haut, s'accordent à dire qu'une telle condition associée avec une troisième molaire incluse est plutôt rare. La question, à savoir si une troisième molaire incluse laissée en place causera davantage de dommages à la dent adjacente que lorsqu'elle est enlevée, sera discutée ultérieurement.

Ash (1962) et Ziegler (1975) notaient tous deux, une incidence marquée de poches parodontaires au distal des deuxième molaires et ce, autant avant qu'après l'extraction de la troisième molaire. Par contre, Von Wowern dans une étude sur des étudiants dentaires, n'avait pu trouver ni signe ni symptôme de poches parodontaires une fois les M3 extraites. Quant à Szmyd (1963), après avoir mesuré la profondeur des poches parodontaires dans 75 cas d'extraction de troisième molaires mandibulaires, il observait une réduction notable de la profondeur des poches après la chirurgie. Cette étude fût d'ailleurs appuyée par les résultats de Grondhal (1973) lequel arrivait aux mêmes observations. Par contre, avec l'avènement des implants ostéo-intégrés, des études récentes ont remis en question la façon avec laquelle le niveau osseux était évalué (Lekholm 1986). Kugelberg (1991) concluait à partir d'un échantillonnage de 51 patients, que l'ablation précoce des M3 incluses favorisait un meilleur état parodontaire des M2, une fois la décision prise de procéder à leurs ablations.

C. Risques pour les infections, kystes et tumeurs

En revoyant la littérature, Stephens (1989) déclarait que les risques de développer des infections sévères, des kystes ou des tumeurs, particulièrement ces deux derniers, sont faibles et ont été exagérés.

Péricoronites

Aucune définition universelle apparaît dans la littérature. Mac Gregor (1985) définit cette pathologie comme étant une infection évoluant vers la formation d'un abcès, lequel peut se dissiper en suivant les aponévroses musculaires, la virulence du processus étant fonction de l'agent étiologique. Au stade initial de la maladie, la symptomatologie peut très bien se confondre avec celle d'une percée dentaire banale. Depuis la conférence du NIH, plusieurs rapports publiés recommandent une investigation plus poussée sur l'incidence et la récidive d'infections autour des M3. Il existe une complicité étroite entre la prévalence de péricoronite et le type d'inclusion. Leone (1986) rapportait dans son étude, que l'inclusion verticale mandibulaire partiellement recouverte de tissus mous ou osseux est la plus susceptible de s'infecter. Doit-on tenir compte aussi, de la capacité de la dent et de son environnement à drainer. Piironen (1981) croyait qu'un large espace folliculaire était associé à une symptomatologie plus bénigne que dans le cas d'inclusions verticales profondes ou disto-angulaires et qu'en plus, qu'une telle condition prédisposait davantage l'infection à se dissiper dans les espaces profonds de la tête et du cou.

Dans une étude longitudinale de quatre années, Von Wowern (1989) révélait qu'au sein d'une population ayant une bonne hygiène buccale, aucun signe d'inflammation gingivale fût noté autour de la M3 ou de la M2 et ce, que la troisième molaire soit conservée ou extraite. Dans une autre étude prospective (Bruce 1980) on démontrait que la péricoronite est la raison évoquée le plus fréquemment (40 p. cent) pour l'extraction des troisième molaires mandibulaires incluses, peu importe l'âge. D'ailleurs Lysell (1988) arrivait à la même conclusion (37 p. cent). La différence entre la symptomatologie du processus aigu et chronique, n'ayant été spécifiée, peut être déduite par la présence de douleur laquelle réduit l'incidence à 27 p. cent. Ceci est en accord avec Nordenram (1987) lequel trouva une incidence de 24 p. cent ainsi que Goldberg (1983), 21 p. cent mais va à l'encontre des résultats d'Osborn (1985) chiffrés à 8 p. cent. En étudiant l'âge et l'incidence de péricoronites et des symptômes aigus, Nitzan (1981) nota que cette condition se manifeste principalement entre 20 et 29 ans et très rarement au-delà de 40 ans. Nordenram (1987) dans un vaste sondage, dénombrait un pic d'incidence dans la même tranche d'âge, seulement, il observa en plus des cas isolés auprès de patients plus âgés. Guralnick (1984) déclara que la source d'infection, la dent, doit être enlevée et qu'habituellement il existe peu d'indications à l'exposition seule, mais beaucoup plus pour l'extraction. Stephens (1989) renforça l'idée de Guralnick en disant: «If a severe primary pericoronitis has occured, extraction is indicated unless the local anatomy can be improved by either the tooth achieving further eruption or by conservative management to control the local environment,» bien qu'aucun résultat n'ait été présenté sur l'efficacité d'un pareil contrôle de l'environnement local.

Kystes

Stephens (1989) fait remarquer qu'un large espace folliculaire ne devrait pas être confondu avec le développement d'un kyste dentigère, particulièrement auprès de la clientèle en pleine croissance. Selon lui, la présence d'une telle pathologie est erronée si l'on se base sur le principe souvent véhiculé (Conklin 1949, Dachi 1961, Mourshed 1964), qu'un espace supérieur à 2.5 mm représente, en toute probabilité, un kyste tapissé d'un épithélium. Ces auteurs se basent sur l'analyse de radiographies panoramiques qui, comme on le sait, comportent des distorsions linéaires majeures, particulièrement dans le plan horizontal. Ces notions peuvent expliquer la panoplie de résultats basés sur des définitions radiographiques d'un kyste et d'un espace folliculaire. A titre d'exemple, voyons les différentes incidences rapportées en ce qui a trait à la formation d'un kyste: Dachi (1961) 11 p. cent; Bruce (1980) 6.2 p. cent incluant les tumeurs; Nordenram (1989) 4.5 p. cent; Mourshed (1964) 1.44 p. cent; Goldberg (1985) 2 p. cent comprenant une prépondérance marquée pour les tumeurs; Osborn (1985) 3 p. cent incluant les tumeurs; Shear (1978) 0.001 p. cent, le dernier diagnostic confirmé par la biopsie. Dans une étude récente, Eliasson (1989), usant de prudence, évita l'emploi du terme «kyste» pour définir l'espace autour des troisième molaires. Sewerin (1990) ne notait aucun changement de l'espace après une période d'observation de quatre ans chez une population d'étudiants dentaires.

Tumeurs

Le développement d'un améloblastome en regard d'une troisième molaire incluse se chiffre comme suit: Regezi (1978) 0.14 p. cent, Weir (1987) 2 p. cent et Shear (1978) 0.0003 p. cent, indiquant par le fait même la rareté de cette tumeur odontogénique. L'améloblastome se développant à partir d'un kyste dentigère est d'autant plus rare (Sheyer 1978) tout comme les néoplasies d'origine dentaire. Quoique rare, cette condition distincte mérite d'être rapportée puisque le Bureau d'enregistrement des tumeurs de l'AFIP découvra huit cas de carcinomes améloblastiques dont quatre originant de l'épithélium

(Suite à la page 766)

If you're thinking of becoming an associate, you've got to find an unequaled opportunity for professional growth. Finding such a thriving practice is one thing; getting jump-started once you're there is another.

And that's where ExperDent can help. With access to several reputed practitioners seeking qualified associates, "matchmaking" comes naturally to us.

"Whether you're picking up your instruments for the first time, finally putting them down (or straddling somewhere in between), you've got your work cut out for you. And it's not just in the operatory."

Russell Knight, B.B.A.

If you're already an associate (but not busy enough), ExperDent can step in and pave the way for success. It takes specific plans and meticulous attention to detail but we'll get you busy. (We've done it time and time again.)

If you're looking for an associate, be it because you're too busy or you're ready to wind down your practice, ExperDent can help you prepare for this all-important transition.

Whatever transition you're going through, ExperDent can help with the weighty details. For more details about how ExperDent can help you, please contact Russell Knight, B.B.A., our practice transition specialist. If there is anyone who knows how to handle the fragile nature of transitions, it is he. Russell has given new meaning to the motto "Handle With Care".

FRAGILE: HANDLE WITH CARE

compatibility • maximizing transition value • associate arrangement • negotiating compensation • growth plan • agreements • increasing practice goodwill

ExperDent*™

2892 S. Sheridan Way, Oakville, Ontario L6J 7G9
Telephone: (416) 829-0011 **Fax:** (416) 829-3072
#200-4161 Dawson Street, Burnaby, BC. V5C 4B3
Telephone: (604) 299-8771 **Fax:** (604) 299-8309

* **Trademark of ExperDent Consultants Inc.**

CDA Access Ads

CDA ACCESS ADS offer guaranteed* access to Canada's largest audience of dentists. To place your ad, call OLA MURPHY toll-free across the country at **(800) 661-5004**. In the Toronto calling area, please dial **(416) 278-6700.**

**If you are not satisfied with the results of your ACCESS AD, we will offer you your money back in the form of a credit for future use. Please call for more information.*

Replying to a CDA Access Box Number? Simply write to:
CDA Access Box ___,
1382 Hurontario St.,
Mississauga, Ont. L5G 3H4.
Or you may fax your reply to (416) 278-4850, noting the appropriate box number.

Offices & Practices

BRITISH COLUMBIA - Southern: General family practice with a preventative emphasis. Independently evaluated and appraised as being unsurpassed in quality. Located in brand new office building. Dental office occupies 2,000 sq. ft. on main floor with a 2,000 sq. ft. basement, yearly gross approximates $800,000. Could easily accommodate two hard-working dentists. Great support staff. Owner returning for postgraduate training. Please reply to CDA ACCESS Box 2526. (10/09)

CENTRAL BRITISH COLUMBIA: Small town, great outdoors. Well established, busy, computerized general practice for sale. Excellent staff, five operatories, lab, panorex. Solo practitioner grossing $550,000 without hygienist. Selling for less than annual net. Retiring, but willing to stay on part time to facilitate the transfer. Reply to CDA ACCESS Box 2549. (09/02)

B.C. - Vancouver Suburbs
Pediatric practice - established Ortho/Pedo practice. Tastefully decorated office with four operatories and central nitrous.
Excellent opportunity for growth.
Medi-Dent Professional Services
Contact: Al Heaps (604) 669-9857.(06/09)

NORTH VANCOUVER
Computerized family practice, three operatories, central location, high income and economically stable area.
Call evenings **(604) 926-6777.** (09/09)

FOR INFORMATION ON B.C. DENTAL PRACTICES FOR SALE CALL
Health Pro Management Ltd.
17335 - 59th Ave,
Surrey, B.C. V3S 1N9
tel (604) 576-2866 fax(604) 576-9180

ALBERTA - Red Deer: "The heart of the parkland." Well established family practice with solid patient base and good recall. Three modernly equipped operatories and panograph. Located in professional building adjacent to regional hospital, excellent lease. Long standing supportive staff. Practitioner planning post-grad studies. Dr. D. Crowe (403) 342-5135 after 6 p.m. (07/10)

ALBERTA - Claresholm: For sale three operatories, shared waiting room, dental building for lease or option to buy. Overhead is low, situated close to the foot hills, skiing mountains, Calgary, Lethbridge. In grain & ranching country with five hospitals, three schools, good golf course, swimming pool and arenas. Good opportunity for expansion. Owner wishes to retire. Phone (R) (403) 625-3254, (O) (403) 625-3559 or Bernie (403) 283-0323. (08/09)

ALBERTA - Edmonton: Growing general practice for sale. Three operatories, panorex. 1,400 sq. ft., stripmall location, recent renovations. Owner relocating. Practice statistics and equipment inventory available upon request. Phone (403) 469-3250 after 6:00 p.m. (09/10)

ALBERTA - Edmonton: Newly established rapidly growing two-and-a-half-year-old practice for sale in desirable south west neighborhood of city. Office beautifully decorated with state-of-the-art equipment, four operatories and hygiene room. Good gross, very reasonable asking price. Owner wishes to retire. For more information phone (403) 438-6200. (09/09)

SASKATCHEWAN: Town on Trans Canada Hwy. Practice and building for sale. Gross over 600K. Must sell. Please reply to CDA ACCESS Box 2547. (08/09)

SASKATCHEWAN - Saskatoon: Superb location, eight-year-old dental practice for sale, 1,600 sq. ft. of beautiful new decor, excellent income, dentist relocating. Reply to CDA ACCESS Box 2550. (09/11)

ONTARIO - Niagara Peninsula: General practice, professionally appraised, with five operatories in 1,500 sq. ft. Two hygienists and denture therapist help support two full-time dentists. Associateship available first if desired. Call Sandy after 6 p.m. (519) 657-3035. (06/09)

ONTARIO - Georgian Bay: Very busy practice for sale, suitable for one or two dentists. Well established practice in a modern facility, only two hours from Toronto. Averaging 35 new patients per month with a high gross and low overhead. Please reply to CDA ACCESS Box 2544. (06/09)

FOR SALE
Busy Oral and Maxillofacial Surgery practice in **Eastern Ontario** city. Full scope of practice. Major anesthesia component to office practice. Small satellite office. Privileges in two tertiary teaching hospitals. For complete information please reply to **CDA ACCESS Box 2539.** (04/09)

MAPLE - ONTARIO
20 minutes north of Toronto, three-year-old dental practice for sale. Beautifully located in a professional building in the centre of a wealthy growing community. Two ops. fully equipped and third wired. Sitting area with marble floors and t.v., low overhead, good referrals and excellent opportunity. Call Pina mornings (416) 787-5557, evenings until 10:00 & weekends (416) 737-9332. (07/09)

family practice, 1,200 sq. ft. office in a medical dental professional centre. Ultra modern dental set-up, good gross, priced to sell. For more information call (902) 245-5666. (04/13)

NEWFOUNDLAND - St. John: Well established general family practice for sale by dentist who wishes to retire. Good location, low overhead, solid patient base. Available September 1992. Call Dr. William Dwyer (709) 726-8698. (08/09)

ASSOCIATE WANTED
DR. BARRY R. GOLDBERG
LILLOET, B.C.
REQUIRES F/T ASSOCIATE FOR BUSY FAMILY PRACTICE.
CONTACT ANN (604) 256-4616 OR EVENINGS (604) 256-7162. (09/09)

BRITISH COLUMBIA
Associate Wanted
For oral and maxillofacial group practice with four offices in the greater Vancouver area. This is an excellent opportunity for an ambitious, energetic and committed individual who is eager to become part of an established growing team of oral and maxillofacial surgeons. Write with full details to
CDA ACCESS Box 2536. (07/09)

Buying or selling practice?
Talk to us.
For flexible financing call
1-800-661-9009
Ask for Keith Liley
HEALTHGROUP
FINANCIAL
A member of the Confederation Life group of companies

To Place your
CDA ACCESS
***AD** just call*
OLA MURPHY
*at **(416)278-6700***
(Toronto Area) or
1-800-661-5004.

ONTARIO - CALEDON
Practice For Sale
Newly renovated, 650 sq. ft., 2 operatories, dental office in plaza. **Very reasonably priced**, ideal for recent grad. Call Dr. Osuch (416) 270-8652 (Mon-Fri., 9-5). (07/10)

NEW BRUNSWICK: Well established family practice for sale in the Moncton area. Three operatories, lab, staff room, dark room, panoramic X-ray and private office, 1,500 sq. ft. (doctor owned). Excellent patient base and recall practice. Please write: P.O. Box 27020, Dieppe, New Brunswick E1A 4X0. (06/09)

NOVA SCOTIA: Rural growing family dental practice, one hour from Halifax. Two fully equipped ops., 900 sq. ft., low overhead, numerous recreational activities available. Located in economically stable growing community. Well priced. Please reply to CDA ACCESS Box 2551. (09/10)

NOVA SCOTIA - Annapolis Valley: Practice for sale in Nova Scotia Annapolis Valley. Very busy

NEWFOUNDLAND: General family practice for sale. Hospital setting, serving 10,000. Easily supports two dentists, with a potential satellite clinic. Two state-of-the-art operatories, and a third with X-ray unit. Excellent lease arrangements, owner will assist in transition. Please reply to CDA ACCESS Box 2535. (02/09)

US FORTUNE 500 CO.
Expanding to Pacific Rim Countries. Extraordinary unlimited income featuring time freedom and predictable 3-5 year retirement. Often a viable supplement to your existing career.
Call Viny Dolce at (407) 969-1001 (11/13)

Positions Available/Sought

ORAL & MAXILLOFACIAL SURGEON
Vancouver - B.C.
Associate leading to partnership/purchase. Well established contemporary full scope practice presents outstanding opportunity. Please reply to
CDA ACCESS Box 2548. (09/10)

BRITISH COLUMBIA - Pender Island: Well established island practice within large community medical facility requires associate to practice two days per week. Daily commute from Vancouver Island is conveniently available via ferry. Ideal for semi-retired dentist or dentist raising children. Call (604) 732-4314. (07/09)

LOCUM LOCATORS
TRY IT AS
A) REPLACEMENT DENTIST
B) OWNER DENTIST
COLLECT (403) 791-7799.
(07/09)

ALBERTA - Edmonton: Periodontist with well-established, progressive, busy periodontal practice is seeking another Periodontist to join him on a cost sharing or associate basis. Excellent opportunity for capable Periodontist qualified to practise in Alberta. Contact Yvette (403) 436-0108. (01/09)

SASKATCHEWAN - Regina: Seeking dental associate for modern office in large medical/dental facility. Good opportunity for the right person. For details call Dr. Ronald Katz, (306) 924-1494, or write to: 235B Albert Street N., Regina, Saskatchewan S4R 3C2. (08/11

THE UNIVERSITY OF SASKATCHEWAN

Dean of the College of Dentistry

Applications and nominations are invited for the position of Dean of the College of Dentistry. The appointment, which will be effective July 1, 1993, will be for a renewable five-year-term.

Enrolment in the College for the 1991-92 academic year was 99 undergraduate students. The University of Saskatchewan has a student population of approximately 18,000 full - and part-time students registered in thirteen colleges.

The College offers an undergraduate program leading to the D.M.D. degree which requires five years of study in the College following a minimum of one year of pre-dental studies in the College of Arts and Science.

The successful candidate will be an established scholar with proven administrative ability. The Dean will have demonstrated a dedication to excellence in research and teaching and will provide leadership for the continuing development of the teaching, research and service programs within the College as well as for the external relationships of the College and its various constituencies. The Dean will also be involved in the University's general academic leadership.

Applications should be accompanied by a detailed curriculum vitae. Letters of nomination should include biographical details of the nominee. Applications, nominations and enquiries should be submitted not later than **October 31, 1992** to:

Dr. Patrick J. Brown, Vice-President (Academic)
Room E216, Administration Building
University of Saskatchewan
Saskatoon, Saskatchewan
S7N 0W0

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. The University of Saskatchewan is committed to the principles of employment equity and welcomes applications from all qualified candidates.

DENTIST ASSISTANT REGISTRAR

ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO

The governing body of the dental profession in the Province of Ontario is seeking an additional Assistant Registrar to fill a key role within its organization.

Reporting to the Deputy Registrar, the responsibility will encompass the management of important statutory activities of the College in the area of Complaints, Discipline and Practice Assessments as well as acting as Secretary to one or more committees of Council.

To qualify, candidates must be licensed or be eligible to be licensed to practise dentistry in Ontario.

In addition to experience in private practice, candidates may also have gained broader exposure in business, government or the academic field. Solid organizational & administrative capabilities will be complimented by excellent interpersonal and communication skills. Proficiency in the French language would be an asset.

The College provides a collegial environment and would be of interest to those comfortable in a team environment.

Compensation includes an excellent benefit package.

The Royal College of Dental Surgeons of Ontario is an equal opportunity employer.

Please submit your written application and resume in confidence before September 30, 1992, to:

The Registrar
The Royal College of Dental Surgeons of Ontario
5th Floor, 6 Crescent Road
Toronto, Ontario
M4W 1T1

PROSTHODONTICS

Faculty of Dentistry
University of Alberta

Applications are invited for a full-time, tenure track, academic position in the Department of Restorative Dentistry starting January 1, 1993, or later by arrangement.
Teaching duties may include undergraduate education primarily in fixed and removable prosthodontics with contributions to other areas including implantology, treatment planning and operative dentistry. Scholarly duties will include an active research program. The position requires graduate training in prosthodontics, experience in an educational institution, an active research interest as evidenced by a significant publication record in reputable journals and eligibility for licensure in the Province of Alberta.
Rank and salary are commensurate with education and experience at either the Assistant Professor ($40,035 - $57,003) or Associate Professor ($49,423 - $71,725) levels. Intramural private practice facilities are available.
In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Applications including a full curriculum vitae and the names of three references should be sent no later than November 15, 1992, to:

Dr. G.R. Holland, Chairman
Department of Restorative Dentistry
University of Alberta, Edmonton, Alberta T6G 2N8

The University of Alberta is committed to the principle of equity in employment. The University encourages applications from aboriginal persons, disabled persons, members of visible minorities and women.

THE UNIVERSITY OF MANITOBA
FACULTY OF DENTISTRY

ASSISTANT/ASSOCIATE PROFESSOR OF ORAL BIOLOGY

Applications are invited for a probationary (tenure track) appointment as Assistant/Associate Professor commencing July 1,1993, or earlier.
Applicants must have a Ph.D. or D.D.S./D.M.D. or both degrees and published evidence of research ability. Candidates holding a dental degree must be licensable in Manitoba. The successful candidate will be required to teach pharmacology and therapeutics to dental and dental hygiene students, and to participate in faculty courses at the graduate level. Preference will be given to candidates with previous experience teaching undergraduate dental, dental hygiene and graduate students. The successful candidate will be expected to develop a strong externally-funded research program. The Department is multidisciplinary, carrying out research in anatomy, biochemistry, cell biology, oral physiology and microbiology.
The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, aboriginal people and persons with disabilities. The University offers a smoke-free environment, save for specially designated areas.
In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.
Letter of application, complete with curriculum vitae and the names and addresses of three referees should be forwarded to:

Dr. R.E. Jordan
Faculty of Dentistry
University of Manitoba
Winnipeg, Manitoba R3E 0W2

The closing date for applications is November 1, 1992.

SASKATCHEWAN
Associate wanted in rural Saskatchewan. Busy general practice in Lanigan urgently requires a full time associate.
Contact Dr. K. Anaman at (306) 365-3344 or (306) 365-3460 (evening). (09/10)

Oral Maxillofacial Surgeon
with fellowship to The Royal College and experience in trauma and orthognathic surgery wishes an associateship with an existing O.M.F.S. practice in Ontario or Prairie provinces. Please reply with telephone # to **CDA ACCESS Box 2546.** (07/09)

EXPERIENCED DENTIST SEEKING ASSOCIATESHIP
Anywhere in Toronto. Available mid Aug. or Sept. for part-time but preferably full-time work. French/English spoken/written. Please call (416) 461-9149 , or write to: 103 Brooklyn Ave., Toronto, Ont. M4M 2X4. (08/09

OTTAWA - Ontario: Bilingual dentist needed for maternity leave from mid January to April 1993. Please call Madeleine (613) 748-0633/0634. (09/10)

YUKON - Whitehorse: Hygienist needed immediately. Full-time, energetic, devoted hygienist required in a six operatory preventative practice in booming downtown Whitehorse. Experience is preferred but new grads are welcome. Salary, benefits to be discussed. Serious applicants please, fax resume (403) 668-5121, or leave message at (403) 633-4528. (08/11)

YUKON - Whitehorse: Associate wanted. Full-time or continuing locum needed in a very busy, bright, well-staffed, friendly, six operatory practice in booming downtown Whitehorse. Ideal opportunity for motivated, hard-working, cheerful individual who wants the best of both worlds - busy patient flow and the beautiful outdoors (skiing, hiking, camping, canoeing, ect.) Serious applicants please, fax resume (403) 668-5121, or leave message at (403) 633-4528. (08/11)

Equipment Sales, Service

WANTED TO BUY
1 used casting machine and burnout oven.
Please call (604) 383-1137. (09/10)

ALBERTA: For sale. Spaceline for D. Dental Unit includes: chair, light, tray, X-ray, built-in ultrasonic scalar, two high-speed handpieces (handpieces included, one fiber-optic), one slow-speed handpiece (handpiece included), high-volume suction, saliva ejector and cuspidor. Brand new, asking $20,000. Contact: (403) 657-3456 (B), (403) 657-3409 (R). (06/09)

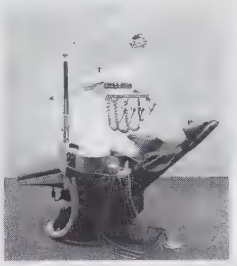
SASKATCHEWAN: For sale. Neophor electronic iontophoresis unit. Never used. New price was $1,300 - asking price is $500 or best offer. Includes video and all accessories. Please call: (O)(306) 642-5674, (R) (306) 642-3839. (09/09)

ONTARIO - Wawa: For sale. Quantiflex Nto. machine and an Ellman Dento'surg. with attachments. Please call (705) 856-2424. Any reasonable offer accepted. (08/09)

DANSEREAU HEALTH PRODUCTS
CLINIC II

California Chair
All, electric, auto return. Reversible cushions, choice of 30 colors.
Delivery System
3 Handpiece automatic foot control, air lock arm, stainless steel tray, 3 way syringe, X-ray view box.
Assistants Package
HVE, saliva ejector, 3 way syringe, cuspidor, manual cup filler, quick disconnect, J-box with controls for easy installation.
Light
Chair mounted light, post plate and cup.

Retail $5,325. Cash Discount $3,995.
We accept Visa & Matercard.
All prices FOB factory Anaheim.
Manufacturer direct sales for 31 years.



DANSEREAU HEALTH PRODUCTS
559 S. Rose Street
Anaheim, CA 92805
(714) 776-5357
(800) 423-5657 (USA & Canada)
FAX (714) 776-4652 (04/09)

Vacation Rentals

BRITISH COLUMBIA - Whistler: Luxury three bedroom two bathroom condo at base of Blackcomb, sleeps two - eight; two kings, two twins, one queen, six appliances, t.v., VCR, 75 yard walk, then ski to lifts. Call (519) 886-8980 Dr. Clarke. (09/12)

LONDON FLATS
for your London stay. Consider our London flats near the Chelsea Bridge/Battersea Park. Elegantly furnished, centrally located with a 2-hour maid service, Monday through Friday. Flat 18 accommodates five people in three bedrooms with bath/shower and fully equipped kitchen. Flat 16 accommodates three people in two bedrooms, bathroom/shower, lovely lounge and dining room and fully equipped kitchen. Can arrange theatre tickets. Contact evenings for brochure: **Mr. Thomas Moore, Telephone: (801) 393-9120, Fax: (801) 393-3024; or P.O. Box 12086, Ogden, Utah 84412 U.S.A.** (10/10)

Meetings & Announcements

THE 14th ANNUAL FLORIDA DENTAL MEDICAL LEGAL & PEDIATRIC MEETING, BOCA RATON, FLORIDA

Place - Embassy Suites Hotel, Boca Raton, Florida
Dates - Dec. 21, 1992 - Jan. 2, 1993
Fee - $250 (US) by Oct. 15 1992
$275 (US) after Oct. 15, 1992
Sponsored by
The Florida Health Seminars
*15 hours of continuing dental education credits available.
Special hotel rates, air rates, and car rental rates available.
For information please contact seminar co-ordinator:
Linda Golnick, 4818 South Knoll Court, West Bloomfield, 48232 U.S.A. (313) 681-0211 (08/10)

THE CANADIAN ASSOCIATION OF DENTAL CONSULTANTS
is holding a Fall Workshop in Kitchener, Waterloo on Oct. 23, 24, 25 1992. For more information contact: **Dr. R.G. Weiler, 535 Park Street, Ste. 3, Kitchener, Ont. N2J 1N8. Phone (519) 744-5562, Fax (519) 746-7829.** (60/09)

Miscellaneous

BURNED OUT?
Over extended, bored, fed up with your current situation? Use this opportunity and your expertise to become financially independent. Get involved as other professionals have in the U.S. and Canada. Call (416) 332-4501 (10/13)

U.S.A. IMMIGRATION LAW

William Newell Siebert,
Attorney at Law.
307 North Michigan Avenue,
Suite 915, Chicago, Illinois 60601
312-329-0646

Practice limited to U.S. Immigration Law Since 1969 (10/12)

Selling a practice?

Leasing an office?

Buying equipment?

Renting your vacaction property?

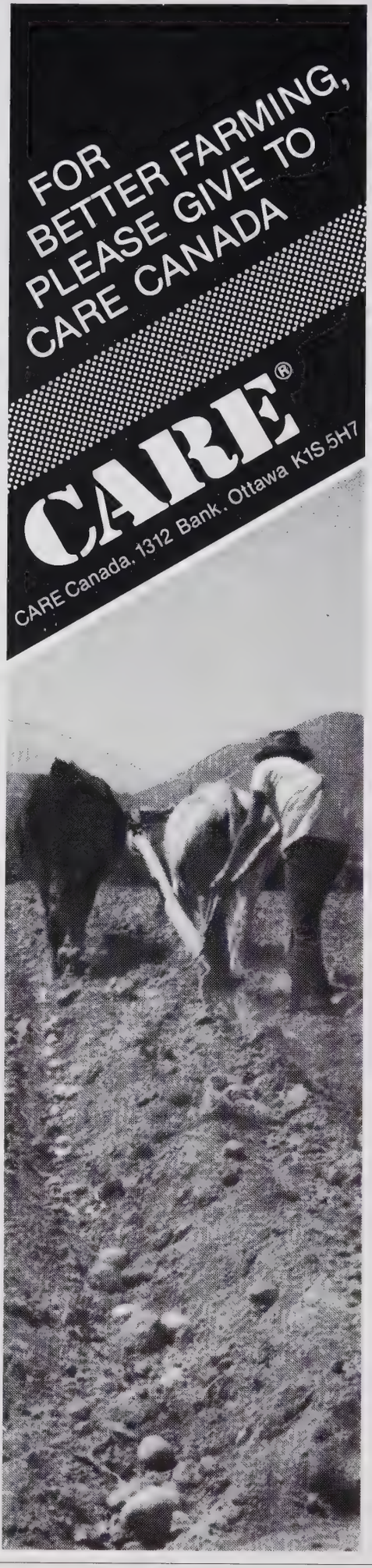
To place your

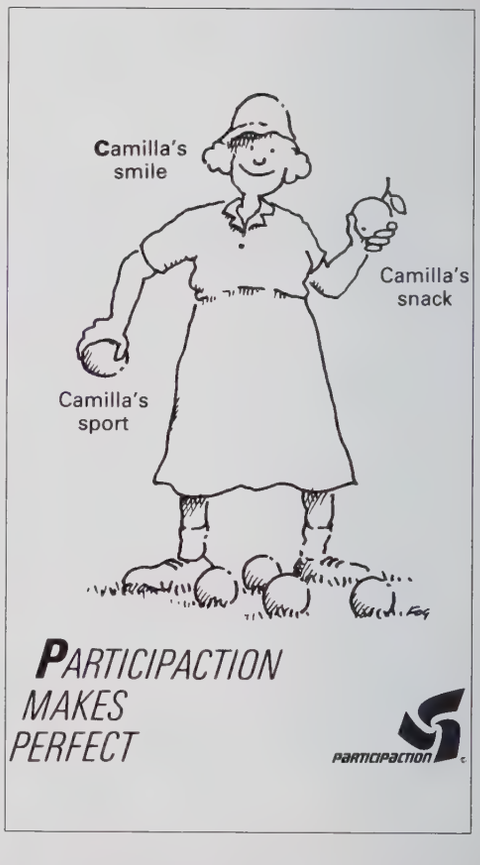
CDA ACCESS AD
just call

OLA MURPHY

Toll-free at
(800) 661-5004.

In Toronto, just dial
(416) 278-6700.





Risques, *suite de la page 759*

d'un kyste dentigère (Corio 1987). En tout et partout, 42 cas de carcinome de l'épithélium dentaire ont été rapportés (Waldron 1989). ■

D^r David S. Precious *est directeur du programme de chirurgie buccale et maxillo-faciale à la faculté dentaire, Dalhousie University.*

D^r Paul Mercier *est directeur de la Clinique de l'atrophie des maxillaires. Département de chirurgie buccale et maxillo-faciale. Centre Hospitalier de St-Mary. Université de Montréal.*

D^r François Payette *est résident au programme de chirurgie buccale et maxillo-faciale de l'Université Laval. Hôpital de l'Enfant-Jésus de Québec.*

Remerciements: *Les auteurs tiennent à remercier sincèrement le* **D^r Guy Maranda**, *chirurgien buccal et maxillo-facial de l'Hôpital de l'Enfant-Jésus de Québec et professeur agrégé de l'Université Laval, pour avoir revu et corrigé ce texte ainsi que mademoiselle* **Phoebe A. Schnelli** *pour l'aide apportée à la traduction et à la réalisation de cet article. De plus, les auteurs tiennent à mentionner que les points II – Risques de l'intervention, III – Bénéfice de la non-intervention, et IV – Bénéfices de l'intervention, mentionnés ci-haut, feront l'objet d'une seconde parution dans cette même revue.*

Demandes de tirés à part: **D^r François Payette**, *Programme de chirurgie buccale et maxillo-faciale. Université Laval. Hôpital de l'Enfant-Jésus. 1401, 18e rue, Québec, Québec, Canada, G1J 1Z4.*

Bibliographie

Étant donné la nature exhaustive de la bibliographie (plus de 144 titres), celle-ci ne sera publiée que prochainement, lors de la seconde parution.

Butler

"Get it all with just one call."

The world's most complete line of quality dental health products is just a phone call away

Butler has turned home dental care into a science. Now we provide you with virtually everything your patients will ever need for a lifetime of dental well-being . . . all from one convenient source.

Not only do we give you the most complete line, but the new Butler Gold Convenient Shipment Plan makes it even easier for you to buy. Just arrange to purchase $400 of Butler products in one year and you'll get the best price on all products regardless of quantity. Call for details.

Butler GOLD PLAN

ADA PROFESSIONALLY RECOGNIZED American Dental Association

Butler

John O. Butler Company
515 Governors Road • Guelph, Ontario N1K 1C7
Phone: Toll-Free 1 800 265-8353
In Ontario and Quebec: 1 800 265-7177 (except AC 418)
Service en Francais: 1 800 265-7203

Butler G·U·M Toothbrushes · Butler Critter Children's Toothbrushes · Special Use Toothbrushes · Proxabrush Interdental System · Floss · Floss Threaders · Protect Fluorides · Protect Prophy Paste & Trays · Protect Dentin Desensitizer · Red Cote Plaque Disclosants · Home-Care Kits · Protect Desensitizing Gel Dentifrice · Teaching Aids · And many other Home-Care Aids

We put putty at your fingertips, not on them.

Introducing Instant Putty

It's easier than ever to do the putty/wash technique. With new Reprosil Quixx Putty material in a cartridge and the new Quixx delivery system. No more kneading putty base and catalyst with your bare hands. No chance of contaminating putty with the chemicals from your gloves.

Fill out the coupon and send it today, Or call us at 1-800-263-1437. In Toronto call 635-7662.

Innovations you can put into practice.

I want to give it a shot.

Send me the **Reprosil® Quixx™ Putty Introductory Kit.**
Have my Caulk distributor bill me in the amount of $298.85 for:

- 1 Quixx Cartridge Dispenser
- 6 Reprosil Quixx Putty Cartridges
- 2 Reprosil Light Body Cartridges
- 1 Bottle of Caulk Tray Adhesive
- 100 Intra-Oral Tips

NAME

TELEPHONE

ADDRESS

CITY PROV POSTAL CODE

CAULK DISTRIBUTOR

IMPRESSION MATERIAL CURRENTLY USED

SIGNATURE

This special offer is limited to one package per dentist. Allow 2-3 weeks for delivery.
Offer expires December 31, 1992. Offer valid in Canada only.
Mail to: Caulk Canada 1100 Lodestar Road, Unit 8, Downsview, Ont. M3J 2Z4

Get it right the first time.

Reprosil® Quixx™ Putty
VINYL POLYSILOXANE IMPRESSION MATERIAL

Caulk Canada
Dentsply

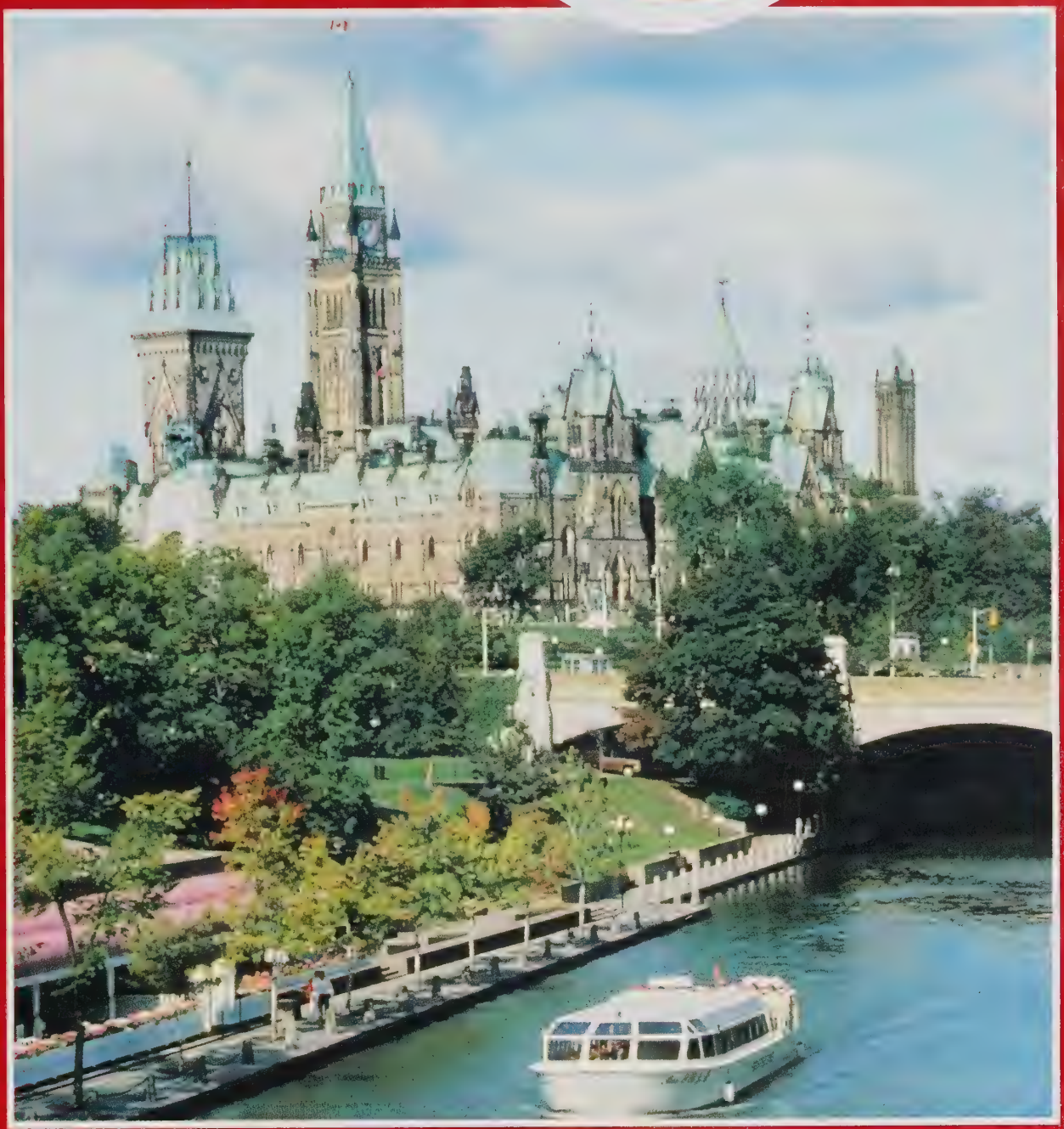
Caulk Canada Division Dentsply Canada Ltd. ©1992 Dentsply International Inc. All Rights Reserved.

tober
tobre
92
58
10

JOURNAL

anadian
ental
ssociation

Association
entaire
anadienne



▲ October is CFDE Month

▲ Octobre est le mois du FCED

ndelivereable
Addressee
TURN TO SENDER
urn Postage
aranteed

non livrable
destinataire
TOURNER À
EXPÉDITEUR
t Payé

LOOKING AT THE DENTSPLY

PERSPECTIVE™

Dental Imaging System...You discover SIMPLICITY AND AFFORDABILITY

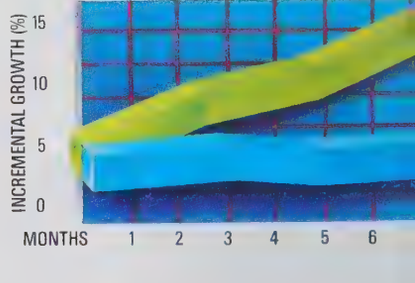
The Dentsply Perspective™ System represents the latest innovation in Intra-Oral Video Imaging technology.

Easy to learn, and operate:

- The advance technology of the Perspective System eliminates the need for complex keyboard sequences. Complete operation can be mastered in under an hour.
- Convenient access to all areas of the oral cavity, is assured by our use of dentistry's smallest colour CCD Intra-Oral Camera. Only the Perspective System offers genuine high resolution and accurate colour imaging under any lighting conditions.
- The Perspective Dental Imaging System is proof that superior technology can be moderately priced.

An investment easy to justify

- Practitioners using Dentsply Video Imaging Systems have reported incremental gains in patien acceptance of 10% or more as well as patient referrals from their existing patient base.



Perspective Imaging System can yours for under $300 per month. Yo Dentsply Dealer can show you how.

Dentsply/Equipment Divisio

Downsview, Ontario, M3J 2Z4 (416) 635-70

October 1992

JOURNAL

JOURNAL STAFF

Executive Director
A. Jardine Neilson

Editor
Dr. P. Ralph Crawford

Managing Editor
Terence Davis

Assistant Editor, Art Production
Louise Després Jones

Assistant Editor, Production
Antonia Papadakou

Scientific Editor (English)
Dr. Robert S. Turnbull

Scientific Editor (French)
Dr. Pierre C. Desautels

CONSULTING EDITORS

Anesthesiology
Dr. Earle Young

Dental Materials
Dr. Peter T. Williams

Medicine
Dr. George K.B. Sandor

Forensic Dentistry
Dr. Robert Dorion

Infection Control
Dr. John Hardie

Pharmacology
Dr. David M. Paton

Practice Management
Dr. Bob Brandon

Nutrition
Mrs. Nina Burgess

Canadian Dental Hygienists Association
Ms. Carole Worobey

Canadian Dental Assistants Association
Ms. Diane Pike

SPECIALTY EDITORS

Endodontics
Dr. W.H. (Bill) Christie

Oral Maxillofacial Surgery
Dr. David S. Precious

Oral Pathology
Dr. J.H.P. Main

Orthodontics
Dr. K.E. Glover

Pedodontics
Dr. Victor Legault

Periodontics
Dr. James E. (Jim) Stakiw

Prosthodontics
Dr. Michael MacEntee

Public Health
Dr. Donald Lewis

Radiology
Dr. Colin Price

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa, Ont.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds. In Canada - $48 (+ GST); United States - $53; all other - $58. Subscriptions are for 12 issues, not necessarily conforming with the calendar year. All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the *Journal*. Publication of an advertisement does not necessarily imply that the Canadian Dental Association agrees with or supports the claims therein.

ISSN 0709 8936

PRINTED IN CANADA

Call CDA for information and assistance toll-free at:

1-800-267-6354

CDA FAX Nos: 1-613-523-7736
1-613-523-5891

All matters pertaining to advertising should be directed to:

Keith Health Care Communications
1382 Hurontario Street
Mississauga, Ont. L5G 3H4
ATTN: Trish Sullivan
Advertising Representative,
or, Ola Murphy
CDA Access Representative

Tel: (416) 278-6700
Fax: (416) 278-4850

Member

American Dental Editors' Association
Canadian Circulations Audit Board

CDA MISSION STATEMENT

The Canadian Dental Association is the authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada, — dedicated to meeting member needs, and the promotion and provision of optimal oral health for Canadians.

The Journal of the Canadian Dental Association is published in both official languages except scientific articles which are published in the language in which they are received. Readers may request the Journal in the language of their choice.

CDA EXECUTIVE COUNCIL

President
Dr. B. Dolansky
Ottawa, Ontario

Past President
Dr. L.S. Allen
Winnipeg, Manitoba

President-Elect
Dr. R. Wenn
Charlottetown, P.E.I.

Vice-President
Dr. B. Sigfstead
Edmonton, Alberta

Dr. J. Brookfield
Kirkland Lake, Ontario

Dr. B. Dolman
Montréal, Ouébec

Dr. J. Diggens
Vancouver, B.C.

Dr. T. Gushue
St. John 's, Nfld.

Dr. B.E. White
Saskatoon, Saskatchewan

Dr. D. Sandilands
Edmonton, Alberta

CDA STAFF

1815 Alta Vista Drive,
Ottawa, Ontario KlG 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Executive Director
A. Jardine Neilson

Manager, Executive Services
Sandra Déziel

Coordinator, Board and Executive
Suzanne Burton

PROFESSIONAL SERVICES

Director, Education and Accreditation and Professional Services
Brian Henderson

Associate Director, Education and Accreditation
Susan Matheson

Coordinator, Accreditation
Gay MacQuarrie

Coordinator, DAT
Danuta Askew

Coordinator, Purchaser Information Program
Coordinator, CDAnet
Patricia Duminy

ADMINISTRATION

Director of Administration
Joel R. Neal

Manager, Human Resources
Shelagh Dunlop

Secretary, Membership
Lydia Allison

COMMUNICATIONS

Director of Communications
Linda Teteruck

Librarian
Martha Vaughan

Manager, Membership Services
Carole St. Laurent

Manager, Information Services
Lisa Burke

ONE MINUTE FLAT!

Nothing disinfects surfaces faster.

Most surface disinfectants take 3 to 15 minutes of continuous surface wetness to kill micro-organisms. Now, with FULL-SPECTRUM Surfex-E, you get proven one minute disinfection of operatory surfaces.

- Cost-effective (reduced staff time, faster patient turn-around)
- Subjected to extensive microbiological testing (results available upon request)
- Pleasant lemon scent and non-corrosive formulation make Surfex-E a pleasure to use

Part of the Microbex Family

Innovation, both in product and technique, is a crucial part of Microbex's success. Our unique pump dispensing systems eliminate waste and mess while batch by batch activation provides virtually unlimited shelf life. The complete Microbex disinfection system, covering all areas of the dental clinic, leads the way in efficient and effective office asepsis.

Leaders in Microbial Control

Microbex, through our fully equipped research laboratory facilities, offers a full range of microbial control services, including computerized spore testing for Chemiclave®, Autoclave and Dry Heat Sterilizers. Put our experienced team of chemists and microbiologists to work for you today.

For more information on Surfex-E, the rest of the Microbex asepsis product line or our microbial control services, simply fill out and mail the handy postage-paid card opposite.

MICROBEX
MICROBIAL CONTROL
CONTRÔLE MICROBIOLOGIQUE

Leaders in Microbial Control

680 Denison Street,
Markham, Ontario, L3R 1C1
Telephone (416) 477-5442,
Fax (416) 477-0740

DISTRIBUTED IN CANADA BY ASH TEMPLE LTD.

JOURNAL
Canadian Dental Association
L'Association Dentaire Canadienne

October 1992 Vol. 58 No. 10

Specialty Features

Whose Got the Patient? The Pitfalls of Working With Another Dentist 806 G.D. Chipeur, LLB, LLM

Dental Injuries at the 1989 Canada Games: An Epidemiological Study 810 C. Todd Lee-Knight, DMD, BSPE; E.L. Harrison, M.Sc., BPT; C.J. Price, M.Sc., B.Sc.PT., BSPE

Clinical Features

Bonded Silver Amalgam Restorations 817 R.E. Jordan, DDS, MSD; M. Suzuki, DMD, M.Sc; H. Balanko, DMD

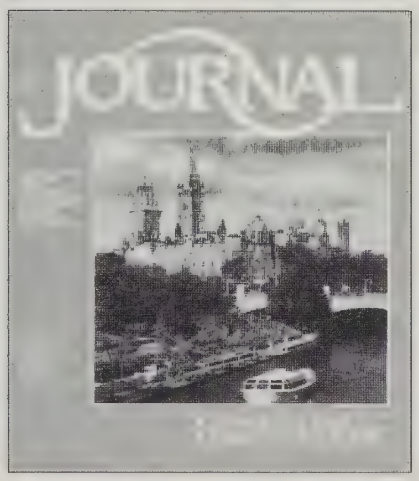
Scientific

Esthetic alternatives for posterior teeth:Porcelain and laboratory-processed composite resins 820 J.N. Walton, CD, DDS, Cert. Prosth., FRCD(C)

A critical view of the rationale for routine, initial and periodic radiographic surveys 825 R.G. Stephens, DDS, M.Sc.; S.L. Kogon, DDS, M.Sc.; W.R. Speechley, BA, MA, PhD et al

Dental Management of anticoagulated patients 838 M.M. Carr, B.Sc., DDS, MD; R.B. Mason, BA Sc., P. Eng., MD

Risques et bénéfices de l'ablation des troisième molaires incluses: Revue critique de la littérature – Partie II 845 D.S. Precious, DDS, M.Sc., FRCD(C), FICD, Dip. ABOMFS; P. Mercier, DDS, FRCD(C), Dip. ABOMFS; F. Payette, DMD



Cover: The Parliament Buildings, as seen from the Rideau Canal, Ottawa. (PHOTOGRAPH COURTESY OF INDUSTRY SCIENCE AND TECHNOLOGY CANADA)

Departments

774 Announcements
775 Editorial
777 President's Column
779 Letters to the Editor
781 Library
783 News Update
791 A Year of Celebration
792 October is CFDE Month
793 Practice Management & Success
797 Book Reviews
799 CDA Convention
803 CDSPI Reports
804 DAP Advisor
837 Advertisers' Index
853 CDA Access Ads
857 It's My Opinion
858 Dental Lab & You

Announcements

NATIONAL HIGHLIGHTS

March 4-6, 1993
B.C. Dental Meeting
Vancouver, B.C.
Marilynne Webster
(604) 736-3645

April 28 - May 1, 1993
1993 Canadian Dental Association Annual Convention (Hosted by ODA)
Toronto, Ontario
See blue pages for more details
or call Janice Edgar
1-800-267-6354
(613) 523-1770

November/Novembre 1992

November 18-20: Swedental Annual Dental Fair in Stockholm, Sweden. For details, write: Ms. May-Britt Carlsson, Press Officer, 125 80 Stockholm, S-125 80 Stockholm, Sweden.

November 28-December 3: Greater New York Dental Meeting being held at the Jacob K. Javits Convention Center, New York Marriott Marquis in New York City. For more details, contact: Greater New York Dental Meeting, New York Marriott Marquis, 1535 Broadway - 3rd Floor, New York, N.Y., 10036-4017 or call: (212) 398-6922.

February/Fevrier 1993

February 10-14: Jamaica Dental Association Annual Convention being held at the Ramada Mallards Hotel, Ocho Rios, Jamaica. For more information, contact: Dr. Louis U. Knight, Chairman, Convention Committee, P.O. Box 19, Kingston 5, Jamaica.

February 13-20: Barbados Dental Association Convention. For more information and pre-registration (limited), contact: Lynne Brandon, CDA, CDR at 85 Lonsdale Dr., London, Ontairo N6G 1T4, or call: (519) 657-4306.

February 16-20: Australian and New Zealand Association of Oral and Maxillofacial Surgeons XVth Biennial Conference, will be held at the Sheraton Southbank, Melbourne, Australia. For more information, contact: Mr. D.W. Wiesenfeld, 766 Elizabeth St., Melbourne, Australia, 3000.

February 20-27: Virgin Islands Dental Association Convention. For more information and pre-registration (limited), contact: Lynne Brandon, CDA, CDR at 85 Lonsdale Dr., London, Ontario N6G 1T4, or call: (519) 657-4306.

February 22-26: "Medicine Update Program for Dentists and Doctors." McMaster University continuing education course is being held at Chateau Lake Louise, Lake Louise, Alberta. For more information, contact: Ms. S. Studd, Continuing Education, Faculty of Health Sciences, McMaster University, Chedoke Campus TB74, 1200 Main St. West Hamilton, Ontario L8N 3Z5. Tel: (416) 521-7966.

March/Mars 1993

March 11-13: 25th Annual Mid Winter Meeting and Bonspiel (Western Canada Dental Society) in Vancouver, B.C. Interested individual curlers or teams can obtain more information by contacting: Dr. Elgin Duke, Chairman, 10340-134A Street, Suite 206, Surrey, B.C. V3T 4B8. Tel: (604) 585-3177.

March 20-24: 27th Australian Dental Congress in Melbourne, Australia. For more details, contact: National Congress Office, P.O. Box 29, Parkville, Victoria, Australia 3052. Tel: (03) 387-9955.

April/Avril 1993

April 15-18: 5th International Congress on Preprosthetic Surgery in Vienna, Austria. For information, contact: G. Watzek, Congress President, Interconvention Austria Center Vienna, A-1450, Vienna, Austria.

April 19-23: 2ème congrès d'Odonto-stomatologie de Côte d'Ivoire à Abidjan. Pour informations, contacté: Comité d'organisation, Dr. Adiko Eyholand F., 22 BP 512 Abidjan 22.

CONTINUING EDUCATION

Dalhousie University
Halifax, Nova Scotia

November 21, 1992
Practical Approach to the Diagnosis and Management of T.M. Joint Dysfunction
Presenter: Dr. Lawrence L. Jackman
Location: Halifax, Nova Scotia

November 28, 1992
Removable Partial Dentures - Part II
Presenter: Dr. Robert Brygider
(Limited Attendance)
Location: Halifax, Nova Scotia

January 16, 1993
Infection Control
Presenters: Ms. Heather Bowers, R.D.A. and Ms. Cathy MacLean, B.N., R.N.
(Limited Attendance)
Location: Halifax, Nova Scotia

For more information, please contact:
Alumni Affairs and Continuing Education
Faculty of Dentistry,
Dalhousie University
Halifax, Nova Scotia B3H 3J5

University of Alberta
75th Anniversary

November 20-21:
Clinical Photography: A Hands-On Approach

November 27-28:
Prosthodontic Aspects of Osseointegration - a course for the General Dental Practitioner

For further information, contact:
Dr. Steve Patterson or Ms. Debbie Grant
Faculty of Dentistry,
University of Alberta
(403) 492-5023 or (403) 492-8240

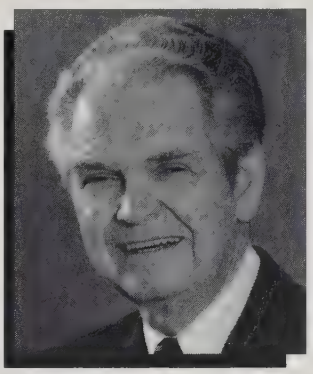
University of Toronto

November 12, 13, 1992
The Impact of Osseintegration on the Treatment of the Prosthodontic Patient

For more information, contact:
Jennifer White
Continuing Dental Education
Faculty of Dentistry
(416) 979-4503

"QUO VADIS, INFECTION CONTROL?"

On occasion, as Douglas Guthrie wrote in his 1949 book, *Lord Lister, His Life and Doctrine,* "The march of human progress is not a steady advance. There are hills and valleys, dark ages and times of revival, failures and successes. New ideas and methods appear. Some are preserved, others are discarded. At times, so many new paths are followed that the traveller becomes quite bewildered."



Dr. P. Ralph Crawford

Guthrie's work traces surgical practice before Sir Joseph Lister introduced the world to "the systematic employment of some antiseptic substance so as to prevent the occurrence of putrefaction" – asepsis, in other words – and then recounts how difficult it was for some members of the medical establishment to accept his protagonist's discovery.

In the process, Guthrie makes frequent references to the doctors and researchers whose work contributed to Lister's 1860 introduction of the principles of asepsis, and carefully describes how Lister applied his own genius to the previous scientific studies of Ignaz Semmeleiss, Louis Pasteur, Robert Koch, and numerous others.

Despite his best efforts – and he was a man who believed that "success depends upon attention to detail" – it took Lister more than 10 years to convince the world "that the application of aseptic techniques prevented the fearful mischief of suppuration."

While the infection control debate of today cannot be compared to the controversy that raged in Lister's day, surely Guthrie's statement, "At times so many new paths are followed that the traveller becomes quite confused," has some validity when it comes to the question of HIV.

In fact, the validity of Guthrie's words have been made abundantly clear in this journal, which has published a wide selection of letters and articles expressing divergent views on sterilization. Who and what is the reader to believe?

On page 779, for example, a letter to the editor by Dr. Ludgwig Leibsohn, a past-president of the Academy of General Dentistry (AGD), outlines the academy's new infection control policy, which states that all dental instruments, including handpieces, should be heat sterilized after each patient. But in its July 1992 edition of *Dental News*, which proclaimed the academy's new infection control policy, AGD also stated that: "There is no evidence that confirms cross-contamination via the handpiece."

In his "It's My Opinion" column, published on page 857 of this journal, Dr. John Hardie states that he cannot agree with Dr. Leibsohn. He feels that the AGD announcement is based on political, media and public perceptions, not scientific fact.

Dr. Hardie points out that dentistry has not allowed the views expressed in the media to change its scientifically-based policies on the use of amalgam and fluoride. Still, it is probably fair to say that dentistry does not speak with as much authority in the area of infection control as it does when it comes to amalgams and fluoridation.

So Guthrie is probably right – selecting the right course of action can be a bewildering process. There seems to be some rationale on both sides of the HIV/HBV sterilization argument. On the one hand, the use of sterilization procedures and barrier techniques may put the patients' minds at ease. Dentists using these techniques are erring on the side of caution at worst, and at best their efforts to do the right thing are leaving nothing to chance. On the other hand, we have to respect the analytical mind of the scientists dealing in hard, cold facts, and many of them believe that total sterilization isn't warranted in the dental setting.

Perhaps things weren't that much different in Joseph Lister's day after all. In 1870, when his paper "On the Effects of the Antiseptic System on the Salubrity of a Surgical Hospital" appeared in *Lancet,* there was a great hue and cry. The public, the *Glasgow Herald* and the Glasgow Royal Infirmary were incensed. Lister was disappointed but undaunted, and he lived to see the day when his methods changed the world of medicine.

Quo Vadis dental practitioner? What path do you follow? We follow the path that generations of dentists have previously trodden. We keep our heads, we stay calm, we seek out wise leaders, we listen to science, we invoke our conscience and we weigh the facts.

We continue with both our hearts and our minds to do the very best for our patients. The wise have known for eons that truth and knowledge will always prevail – *veritas liberabit vos.*

P. Ralph Crawford, BA, DMD
Editor of the Journal of the Canadian Dental Association

Tantum.
Your partner for fast relief of oral pain and inflammation.[1-3]

Tantum Oral Rinse is a partner you can rely on to give many of your patients prescription relief of oral pain and inflammation.[4] Tantum begins working on contact,[1-3] offering rapid relief that lasts for up to 3 hours.[4] Its topical application is designed to enhance patient compliance. Add clinically proven efficacy,[1-6] and you have the full picture of why Tantum may be an ideal partner for your practice.

Pr **Tantum** Oral rinse TM
(Benzydamine HCl Solution)

Prescription relief of oral pain and inflammation.

Ⓜ Official Mark of the Canadian Olympic Association

MEMBER PMAC PAAB CCPP

Innovation working for you™

3M Pharmaceuticals
3M Canada Inc.
Post Office Box 5757
London, Ontario N6A 4T1

3M

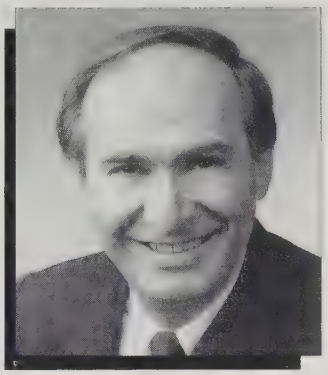
Sponsor 1992 Olympic Games

President's Column

THE FUTURE IS NOW

Around 2,000 years ago, a scholar and sage posed three questions to his students: If I am not for myself, who will be? If I am only for myself, what am I? If not now, when?

While mankind has come a long way in the 20 centuries since these questions were first debated, they are as valid today as they were then. Take the challenges faced by the Canadian Dental Association over the last two years, for example. We have consistently delivered a full range of services to every dentist in Canada, but only two-thirds of them contribute to CDA's revenues through membership dues.



Dr. Bernard Dolansky

Given this situation, the time has come for us to take a good, hard look at CDA, and ask ourselves the same questions that the ancient scholar posed to his students.

If we are not for ourselves, who will be? The answer is obvious – nobody. As our recently approved mission statement makes clear, CDA must be dedicated, primarily, to meeting the needs of our members. Yes, CDA remains committed to ensuring that the Canadian public has access to optimal oral health care, and, yes, CDA is and must be "the authoritative national voice, resource and focus of unity for the profession of dentistry in Canada," but we must be, first and foremost, a membership-driven organization.

Our members are health care practitioners, educators, administrators and business people, but above all professionals. Unfortunately, some of Canada's dentists have placed their individual goals above their professional responsibilities, and chosen not to support their national association. In Quebec and Ontario, this "me first" attitude is affecting our membership levels. Worse still, new graduates don't seem to view membership in their national and provincial associations as being a part of their professional responsibility.

These young men and women are the future, the key to our survival. We've got to reach out, grab them, and make them see what we're doing on their behalf. We must convince them that the ongoing success of the dental profession is inextricably linked to their participation in a strong, cohesive, and well-organized national association.

If CDA is to remain a flourishing, vital organization, we cannot continue to be all things to all people. We can no longer provide programs that benefit every dentist in Canada when more than 30 per cent of the dentists in Quebec and Ontario refuse to pay for those programs.

We also have to reexamine our programs and services to ensure that they are meeting the existing and future needs of our members, and develop new programs to meet the needs of the next generation of dentists.

In effect, CDA must ask dentists a 2,000-year-old question: If we are only for ourselves, what are we? Again, there is a simple, one-word answer – nothing. The very essence of our professionalism is contained in our commitment to learning, as well as in our obligation to provide for the oral health care needs of our patients.

But the "me first" practitioners seem to have put their professionalism aside. Their concern with the almighty dollar, and their failure to participate in organized dentistry, is hurting the dental profession. These practitioners have failed to recognize that we, as individual dentists, are nothing if we are only for ourselves.

Finally, we must consider the sage's third and final question: If not now, when? In other words, how long can CDA go on being all things to all dentists? The answer is clear – not long. In real dollar terms, CDA's annual revenues have not been growing significantly, but each year we are being asked to provide more and more services. This is an untenable situation, and it's one that we have to rectify quickly.

The problem, obviously, is closely linked to CDA's disappointing membership levels in Ontario and Quebec. But it extends well beyond the borders of our two voluntary provinces. Every Canadian dentist will suffer if CDA's ability to effectively manage the issues of concern to dentistry is impaired, especially the dentists residing in the smaller provinces. For example, what would have happened if CDA had not presented dentistry's views on the application of the GST to the federal government, or if we had not taken the lead in responding to the mercury amalgam controversy?

CDA has grown and thrived for 90 years. But we live in changing times, and our association must change, too. Our national leadership should better reflect the changing demographics of the dental community, by accepting women and visible minorities into our ranks.

Still, for most dentists the decision to join a professional association must continue to be based on conviction, the conviction that it is unthinkable for dentists to be professionals and not be part of the collegiality of national, provincial and local dental associations.

This belief led to the founding of CDA 90 years ago. If we can nurture it in the hearts of the next generation of dentists, CDA will remain strong and vital for 90 years to come.

Bernard Dolansky, BA, DDS, MS
President of the Canadian Dental Association

What happens when a car company refuses to accept the word "can't"?

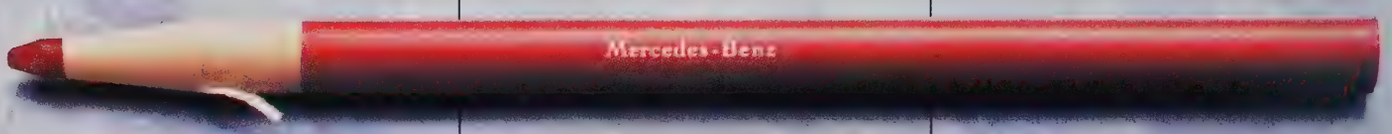
At Mercedes-Benz we've found that by eliminating the word "can't" from our vocabulary, seemingly contradictory feats of automotive engineering can be accomplished.

You can't design cars that can be driven hard and expect them to last a long time.

In designing automobiles to meet the great strains of high-speed Autobahn driving, Mercedes-Benz has also managed to achieve the best longevity record of any luxury car sold throughout the past 15 years.*

You can't build high performance sedans that also lead the way in safety technology.

High performance cars generally don't provide the safety features of more conservatively-designed cars. But Mercedes couples performance and safety engineering.



According to Automobile Magazine:** "The 500E's handling characteristics are 'best in the world'", yet its safety features are among the most advanced.

You can't build cars that are both innovative and dependable.

Mercedes is committed to innovation, as evidenced by thousands of engineering patents. Yet before any become reality, they're so thoroughly tested that they are dependable from the start.

You can't design cars that will look new today and classic tomorrow.

The body design of the Mercedes is evolutionary, not revolutionary.

A Mercedes looks the way it does because of function, not vanity.

That's why Mercedes-Benz cars grow old gracefully, some even becoming classics.

All of which goes to prove that with Mercedes you don't have to give up anything to get everything.

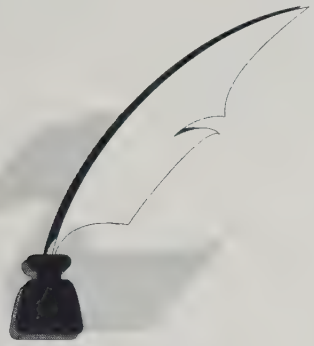
For more information, call 1-800-387-4632.

Sacrifice nothing.

*Based on registration data for years 1977-1991. **Automobile Magazine, April 1992.

©1992 Mercedes-Benz Canada, Inc., Toronto, Ont., Member of the Daimler-Benz Group.

Letters



■ Lasers in Dentistry

I wish to refer your readers to a timely document, "Research in Lasers in Periodontics," prepared by the research, science and therapy committee of The American Academy of Periodontology in May 1992.

This is the type of material that should be in the *Journal* rather than the article published in the April 1992 issue (Crawford, P.R. Lasers – The New Wave in Dentistry. *J Canad Dent Assoc* 58(4):297-301, 1992). The *Journal* article could indirectly influence dentists and the public to accept laser dentistry, which at this time is but costly experimentation.

Edward, J. Hannigan, DDS
Halifax, Nova Scotia.

■ Hepatitis B

Thank you for publishing the article "A 1992 Update on Hepatitis B Vaccination" by Dr. John Hardie (Vol. 58, No. 7, 569-570). Dr. Hardie did an excellent job explaining why dental staff should be vaccinated against this potentially-fatal virus.

Since making a presentation to the National Advisory Committee on Immunization in 1989, the Canadian Liver Foundation has been pushing for:

1. Immediate mass vaccination of all neonates.
2. Vaccination of all children up to the age of eight years.
3. Vaccination of all members of occupational risk groups.
4. Vaccination of members of all other risk groups identified by NACI.
5. Mandatory screening and vaccination of all immigrants.

Therefore, we were pleased with Dr. Hardie's recommendation that all dental staff receive the hepatitis B vaccine. It is a pleasure to read articles recommending the use of the HBV vaccine in health care settings, while identifying high risk groups. We hope that more articles of this type will reach a host of target groups in the future, as this will help our fight for mass vaccination against this serious virus.

Lorraine Gallagher
Communications Coordinator
Canadian Liver Foundation
Toronto, Ontario.

■ Canada Not for Sale

I congratulate the *Journal* for running Dr. P. Ralph Crawford's remarkable editorial, "Canada Not For Sale," which appeared in the July 1992 issue.

When we compare Canada with other nations, we should consider ourselves fortunate to live in such a generous, independent and free country.

Daniel Kandelman, DMD, MS, MPH
Montreal, Quebec.

■ Infection Control

I have read, with great interest, the letters published in the *Journal* on the heat sterilization of dental handpieces.

But as immediate past president of the Academy of General Dentistry (AGD), my interest soared to new heights when I read my name in connection with an argument against heat sterilization. I wish to clarify the academy's position on this serious subject.

The 33,000-member Academy of General Dentistry has adopted a policy which supports heat sterilization for dental instruments. The policy was adopted during the July 14 meeting of the academy's house of delegates, but it had been broadcast as an interim policy in May, on ABC's "Good Morning America" television program, and was communicated to the public through the Reuters wire service just prior to the broadcast of the "Prime Time" and "Street Stories" television programs on infection control.

The academy's support for heat sterilization was voiced in our publications as early as April, when we became aware that there is increasing evidence that the handpiece is capable of harboring the HIV virus.

We know that public concern and confusion about AIDS have stopped many people from getting the dental care they need and want. We also know that the scientific community has studied and accepted the possibility of cross-contamination through the dental handpiece. Dentists have an obligation to their patients. As long as there is a possibility of cross-contamination, we owe it to our patients to take all precautions against this occurrence.

The academy's leaders believe that the public good is best served by using dental office sterilization procedures that provide patients with protection against cross-contamination, and demonstrate the dental profession's commitment to patient health and safety. We therefore decided to move ahead to support heat sterilization for all dental instruments, after each patient, and we encourage people to ask questions of their dentist if they are concerned or in doubt.

Whether or not you believe the studies showing that the handpiece is capable of transferring disease, do what is responsible and sterilize your handpieces after each patient. Tell your patients that you are doing this and let them know why. They will appreciate knowing that you are taking this extra precaution on their behalf.

Ludwig Leibsohn, DDS
1991-1992 AGD president
Chicago, Illinois

■ I was gratified to read Dr. John Hardie's review of the office procedures required for commonsense infection control: "Concerns Regarding Infection Control Recommendations for Dental Practice" (*J Canad Dent Assoc* 58(5):377-386, 1992). I have always found it interesting that controlled-circulation journals – those distributed free to subscribers and nonsubscribers alike, and therefore totally dependant on commercial advertising as their principal revenue generator – consistently publish unsolicited articles promoting the use of scientifically-stringent infection control measures.

I found it very gracious of Dr. Hardie that he did not point out the financial benefits hoped for by the dental supply companies pushing for more and more strenuous infection control procedures.

K.M. Black, B.Sc. DMD
Bathurst, New Brunswick

■ Editor's Note

The Journal has a strict policy of maintaining the separation of advertising and editorial content. Articles that appear in the magazine do so based solely on their merit and relevance. We refer our readers to the disclaimer appearing on the masthead of every Journal issue, "Publication of an advertisement does not necessarily imply that the Canadian Dental Association agrees with or supports the claims therein."

■ Fluorosis

From the time I was in public school to the time I graduated from dental school, classmates and instructors asked me about the chalky white and grey banding patterns on my teeth.

As an immigrant from Hong Kong, I have observed similar banding patterns on many other Chinese who were born in Hong Kong between the late 1950s and the late 1960s. (There also seems to be a low caries rate among this group).

The banding does not appear in either the parents or the offspring of this generation. This observation suggested enamel fluorosis, but I sought confirmation. Therefore, I wrote a letter to the University of Hong Kong and received the following reply:

"Water in Hong Kong has been fluoridated since March 1961. The original concentration of fluoride was 0.9 ppm during the summer months and 0.7 ppm during the winter months. This target level was increased to 1.0 ppm on a year-round basis from May 1967 to June 1978. Our department's research into the fluoride intake of Chinese children in Hong Kong indicated that a water fluoride level of 1.0 ppm is above optimal for Hong Kong. Epidemiological surveys also found a higher than optimal level of enamel fluorosis in subjects born between the late 1950s to mid 1970s. The chalky white patterns you described in your letter are a very common finding in Hong Kong, and are most likely to be a form of enamel fluorosis. As a result of such findings, the target water fluoride level in Hong Kong had been adjusted downwards since 1978. This probably accounted for your observation of an improved enamel appearance in children of this generation."

This information poses an interesting question. Do children raised in Hong Kong ingest significant amounts of fluoride from sources other than drinking water, such as Chinese tea, for example? (Adding 1.0 ppm of fluoride to the water supplies of North American cities produces much less enamel fluorosis than is found in the affected segment of the Hong Kong population.) If the answer to the question is "no," then I wonder if Chinese people are particularly susceptible to enamel fluorosis.

It would be helpful to learn if there was a comparable incidence of enamel fluorosis among Caucasian children born and raised in Hong Kong during the same period. I invite readers to share the related information with me.

Paul Zung, DDS
Toronto, Ontario

The cure for complex legislation

When you require prompt, reliable advice you can trust, you need a lawyer who believes in the importance of your concerns. Tracey Tremayne-Lloyd is committed to that belief, and to providing you with the level of service you need.

Since being called to the Ontario Bar in 1984, Tracey has concentrated her practice on health law and civil litigation. As the partner in charge of our Health Services Group, she provides assistance with changes in legislation, complaints and discipline, employment problems, malpractice and liability issues, infectious disease, the confidentiality of health care information and other health law-related matters. As a member of your team, Tracey can ensure you receive the service you deserve.

Tracey Tremayne-Lloyd
(416) 597-4088

GC
GOODMAN AND CARR
BARRISTERS AND SOLICITORS

Library/Bibliothèque

Toothbrushes and dentifrices

Brosses à dents et dentifrices

1. Addems, A. and others. "The lack of efficacy of a foam brush in maintaining gingival health: a controlled study." *Spec Care Dentist 1992; 12(3):102-106.*
2. Addy, M. and others. "Effect of plaque on five toothpastes used in the treatment of dentin hypersensitivity." *Clin Prev Dent 1992; 12(4):28-33.*
3. Beatty, C.F.I and others. "Comparative analysis of the plaque removal ability of .007 and .008 toothbrush bristles." *Clin Prev Dent 1990; 12(5):22-7.*
4. Bratel, J. and Berggren, U. "Long-term oral effects of manual or electric toothbrushes used by mentally handicapped adults." *Clin Prev Dent 991; 13(4):5-7.*
5. Breuer, M.M. and others. "A comparison of the plaque-removal efficacies of two electric toothbrushes." *Quint Int* 1989; 20(7):501-4.
6. Ciancio, S.G. "Calculus-reducing dentifrices." *Dent Manage* 1990; 30(1):54-5.
7. Ciancio, S.G. and Mather, M.L. "A clinical comparison of two electric toothbrushes with different mechanical actions." *Clin Prev Dent* 1990; 12(3):5-7.
8. Clerehugh, V. and others. "The effectiveness of two test dentifrices on dental plaque formation: a 1-week clinical study." *Am J Dent* 1989; 2 (Spec no.):221-4.
9. Ciancio, S.G. and Mather, M.L. "A clinical comparison of two electric toothbrushes with different mechanical actions." *Clin Prev Dent* 1990; 12(3):5-7.
10. Duckworth, R.M. and others. "Effect of mouthrinsing after toothbrushing with a fluoride dentifrice on human salivary fluoride levels." *Caries Res 1991; 25(4):287-91.*
11. Duckworth, R.M and others. "Fluoride in plaque following use of dentifrices containing sodium monofluorosphate." *J Dent Res* 1989; 68(2):130-3.
12. Efraimsen, H.E. and others. "Abrasive effect of a rotating electrical toothbrush on dentin." *Clin Prev Dent 1990; 12(4):13-8.*
13. Glass, R.T. "The infected toothbrush, the infected denture, and transmission of disease: a review." *Compend Contin Educ Dent* 1992; 13(7):592-598.
14. Jenkins, S. and others. "Comparative effects of toothpaste brushing and toothpaste rinsing on salivary bacterial counts." *J Periodont Res 1990; 25(5):316-9.*
15. Koch, G. and others. "Caries-preventive effect of fluoride dentifrices with and without anticalculus agents: a 3-year controlled clinical trial." *Caries Res* 1990; 24(1):72-9.
16. Kohut, B.E. and others. "The relative clinical effectiveness of three anticalculus dentifrices." *Clin Prev Dent 1989; 11(1):13-6.*
17. Laster, L.L. and Lobene, R.R. "New perspectives on Sanguinaria clinicals: individual toothpaste and oral rinse testing." *J Canad Dent Assoc* 1990; 56(7 Suppl):19-30.
18. Lentz, D.L. and others. "Toothbrush abrasion caused by different dentifrices." *Quint Int.* 1991; 22(12):985-8.
19. Lobene, R.R. "A study to compare the effects of two dentifrices on adult dental calculus formation." *J Clin Dent* 1989; 1(3):67-9.
20. Moran, J. and others. "Comparison of an herbal toothpaste with a fluoride toothpaste on plaque and gingivitis." *Clin Prev Dent 1991; 13(3):12-5.*
21. Moran, J. and others. "Comparison of the effect of toothpastes containing enzymes or antimicrobial compounds with a conventional fluoride toothpaste on the development of plaque and gingivitis." *J Clin Periodontol 1989; 16(5):295-9.*
22. Moyer, C. "Toothpaste, dental floss and tooth whiteners." *Ont Dent 1992; 69(6):12-14.*
23. Petersson, L.G. and others. "Caries-preventive effect of dentifrices containing various types and concentrations of fluorides and sugar alcohols." *Caries Res* 1991; 25(1):74-9.
24. Preber, H. and others. "A comparative study of plaque removing efficiency using rotary electric and manual toothbrushes." *Swed Dent J 1991; 15(5):229-34.*
25. Pretara-Spanedda, P. and others. "Toothbrush bristle dentistry: relationship to plaque removal." *Am J Dent* 1989; 2(6):345-8.
26. Rawls, H.R. and others. "The measurement of toothbrush wear." *J Dent Res 1989; 68(12):1781-5.*
27. Simard, P.L. and others. "The ingestion of fluoride dentifrices by young children." *ASDC J Dent Child 56 (3):177-81.*
28. Taller, S.H. "Clinical study of the anti-calculus effect of two pyrophosphate containing dentifrices and baking soda." *J N.J. Dent Assoc* 1990; 61(2):20-3.
29. Tanzer, J.M. and others. "Bicarbonate-based powder and paste dentifrice, effects on caries." *Clin Prev Dent* 1990; 12(1):18-21.
30. Wade, W.G. and Addy, M. "Antibacterial activity of some triclosan-containing toothpastes and their ingredients." *J Periodontol 63(4):280-2.*

Acquisitions

Books

1. Leake, J.L. *Report on the oral health survey of Canada's Aboriginal children aged 6 and 12.* [Toronto] : [University of Toronto], 1992.
2. Naylor, W. Patrick. *Introduction to metal ceramic technology.* Chicago : Quintessence, c1992.
3. Stewart, Kenneth L., Rudd, Kenneth D., Kuebker, William A. *Clinical removable partial prosthodontics.* St. Louis: IEA, 1992.
4. Working group on HIV infection and mental health. "Ending the isolation: HIV disease and mental health in the second decade." [Ottawa] : Minister of National Health and Welfare, 1992. Also available in French under the title "Mettre un terme à l'isolement: L'infection par le VIH et la santé mentale au cours de la deuxième décennie."
5. Worthington, Philip; Brånemark, Per-Ingvar. *Advanced osseointegration surgery: applications in the maxillofacial region.* Chicago : Quintessence, 1992. ■

One copy of the above package of articles is available for $5.00 to all CDA members and for $10.00 to non-members. (plus GST and, Ontario residents, please include 8% provincial sales tax.)
Daily: 1-800-267-6354
Envoy: CDN.DENTAL.LIB.
FAX: 613-523-7736

Les membres de l'ADC peuvent obtenir pour 5$ et les non membres pour 10$ une copie des articles de la bibliographie ci-dessus.
Aux heures ordinaires:
1-800-267-6354
Programme informatique
Envoy: CDN.DENTAL.LIB
Bélinogramme:
(613) 523-7736

CANADIAN DENTAL ASSOCIATION

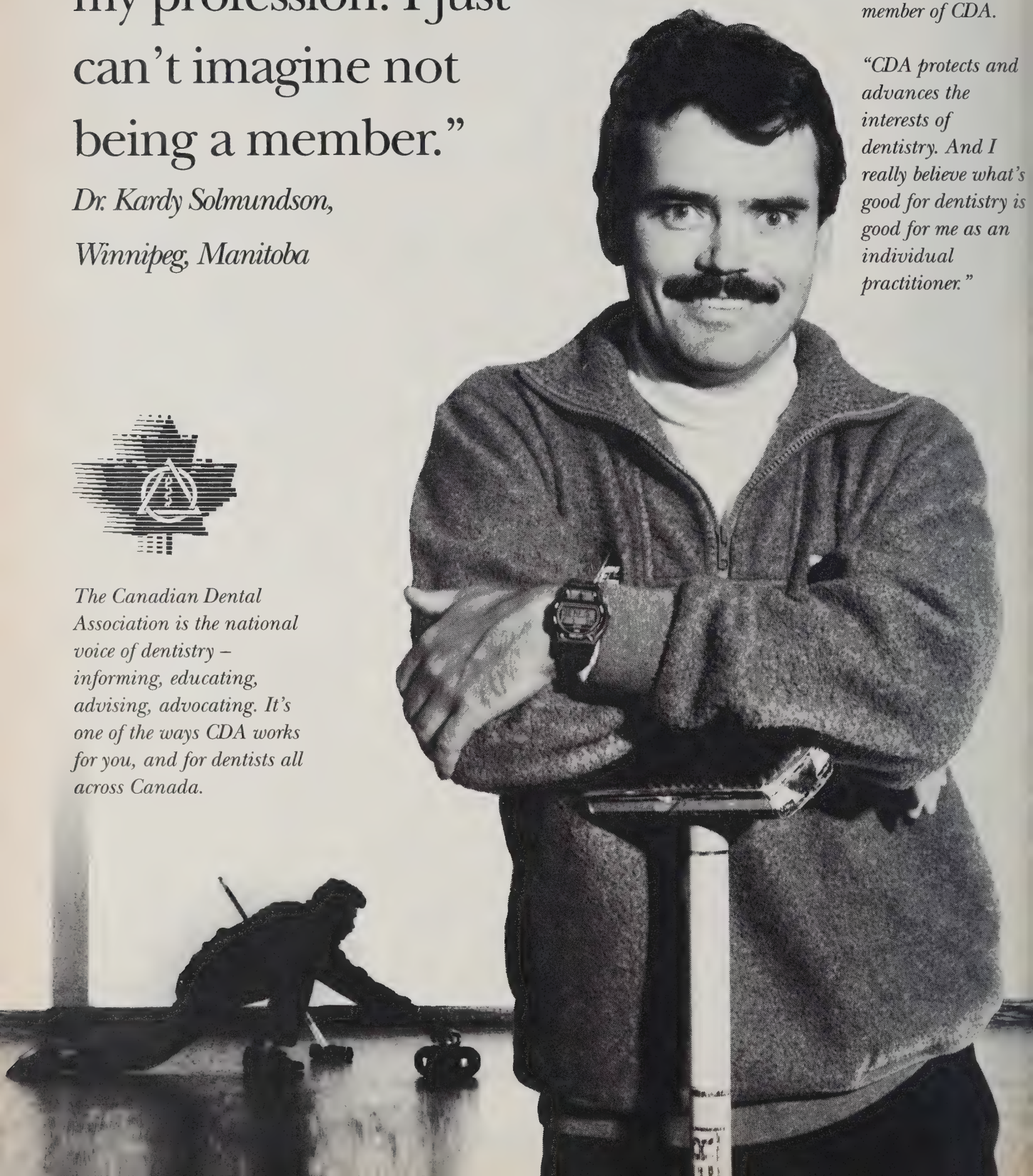
"CDA is the voice of my profession. I just can't imagine not being a member."

Dr. Kardy Solmundson,

Winnipeg, Manitoba

Dr. Kardy Solmundson: general practitioner, curler – and member of CDA.

"CDA protects and advances the interests of dentistry. And I really believe what's good for dentistry is good for me as an individual practitioner."



The Canadian Dental Association is the national voice of dentistry – informing, educating, advising, advocating. It's one of the ways CDA works for you, and for dentists all across Canada.

News Update

Dr. Marcia Boyd Appointed Dean

Dr. Marcia Boyd

The first woman to head a Canadian dental faculty has been appointed as dean by the University of British Columbia.

Dr. Marcia Boyd, a 1969 dental graduate from the University of Alberta, joined U.B.C.'s dental faculty in 1972. During her tenure, she has served as division head of operative dentistry and taught in the senior clinic. She is now the coordinator of a portion of the preclinical program of the performance simulation laboratory.

On the administrative side, Dr. Boyd has served as assistant dean and associate dean for academic and student affairs, and has participated on several committees of the College of Dental Surgeons of British Columbia. She maintains a private practice.

Dr. Boyd was also the first-ever woman to serve as president of the Association of Canadian Faculties of Dentistry. She received CDA's award of merit in 1989, and assists the Canadian Fund for Dental Education (CFDE) in its selection of candidates for postgraduate and graduate fellowships and awards. ■

Dental Pentathlon Gold Medal Awarded

A Port Perry, Ontario, dental patient was the grand prize winner in the CDA/Bausch & Lomb Dental Pentathlon.

Mr. Timothy Weekes was awarded an all-expense trip for two to the Summer Olympics in Barcelona, Spain, after his name was drawn first from over 5,000 "Dental Olympic" entries.

Launched during Dental Health Month in 1991, the CDA/Bausch & Lomb Dental Pentathlon tested patients on their knowledge of CDA's five-point prevention plan: Don't rush your brush; Clean between; Eat, drink, but be wary; Check your gums; Don't wait until it hurts.

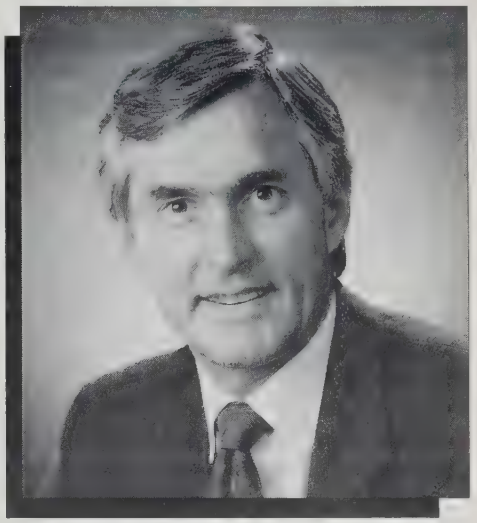
The contest was divided into two parts. Phase one was open to participating dentists and hygienists, with the winners – Dr. Ernie Slubik and Deloris Wood – receiving all-expense paid trips to the Winter Olympics in Albertville, France. Phase two was open to the public, who were able to obtain entry forms at over 2,000 dental offices and drug stores across Canada.

In addition to the phase-two grand prize awarded to Mr. Weekes, 25 second-prize winners won Olympic track suits and 50 third-prize winners received Bausch & Lomb Wayfarer Ray-Ban sunglasses. ■

B.C. Dental College Elects New President

A general practitioner from Vernon, B.C., has been elected president of the College of Dental Surgeons of British Columbia for the 1992-93 term.

Dr. Marke Pedersen, a 1971 graduate of the University of Alberta and a past-president of the Vernon Dental Society, has been actively involved in College of Dental Surgeons of B.C. since 1982. He was appointed as a B.C. representative to the CDA board of governors in 1991.



Dr. Marke Pedersen

Other officers elected to the college for the 1992-93 term are: Drs. Don Scramstrad and Larry Rossoff, vice-presidents, and Dr. Jim Brass, treasurer. ■

Dental Company Sponsors Regatta Yacht

Ash Temple Limited, Dr. Wayne Pulver of Toronto and children with physical disabilities all came up winners in the 1992 Heineken Cup Easter Seals Regatta, held in Toronto Harbor July 15.

Dr. Pulver's yacht, Silent Woman, sponsored by Ash Temple, finished

Dr. Wayne Pulver (fourth from the left) and the crew of "Silent Woman."

P.E.I. Appoints 1992-93 Executive

The Dental Association of Prince Edward Island recently appointed its executive for the 1992-93 term. Left to right: Drs. Ernie Corrigan and Greg Hood, members at large; Dr. Colin Jack, president and representative to the CDA board of governors; Dr. Michael Connolly, secretary-treasurer; Dr. Paul McCarvill, past-president and Dr. Stewart MacDonald, president-elect.

fourth in the C34 class. More than 150 yachts participated in the annual event, which raised $155,000 for the Easter Seal Society. ■

FDI President Dies In Office

The president of the Fédération Dentaire International (FDI) died suddenly August 16, while attending the 70th Congress of the Dental Association of South Africa.

Dr. Kazuo Yamazaki was installed as FDI president in September 1991, during the organization's congress in Milan, Italy. He had previously served as the president of the Japan Dental Association from 1977-1990, and was first elected as an FDI councillor in 1987. FDI's president-elect, Dr. Clive Ross of New Zealand, will complete Dr. Yamazaki's term. He will begin his own two-year term as FDI president when the FDI congress meets in Gothenburg, Sweden, in 1993.

Dr. Ross earned his dental degree in 1961, and maintains a general practice in Auckland, N.Z. He currently chairs the Dental Council of New Zealand, and manages the Auckland Area Health Board oral health service.

An active member of FDI since 1965, Dr. Ross was first elected to the FDI council in 1983, and became the organization's vice-president in 1986. ■

Ash Temple Sponsors Consumer Seminars

Michel Hart (r), the chairman of Ash Temple Ltd., with CDA's past-president, Dr. Les Allen.

Ash Temple Limited, a major Canadian supplier of dental products, equipment and services, will sponsor CDA's "Dental Consumer of the Nineties" seminars, which are scheduled to begin this fall.

Mr. Michel Hart, the chairman of the board of Ash Temple, presented CDA with a cheque for nearly $50,000 August 29, during the association's recent board of governors meeting in Calgary.

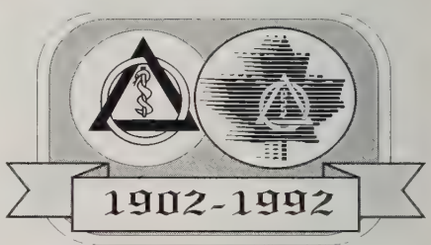
"Among Ash Temple's guiding principles, we include dental continuing education," said Mr. Hart in his address to the board.

The funding for the CDA seminars will come from Ash Temple's equity grant program, which was established in 1989 to support continuing education programs and the advancement of clinical dentistry. Funds are allocated annually, with grants alternating between dental associations and teaching institutions.

CDA's Dental Consumer of the Nineties seminar is based on extensive research from a wide variety of primary and secondary sources. The three-hour-long seminar was designed to promote a better and broader understanding of the changing world that dentists are facing in the '90s. It will also examine various factors that could affect dental practice, including Canada's demographics (and related trends) and their implication for dentistry.

Seminars will be offered in Ottawa, Toronto, Montreal, Vancouver and Halifax. ■

90 Years of Leadership



CDA Board Passes New Resolutions

Resolutions on fluoridation, CDAnet, hazardous materials and the supervision of dental hygienists highlighted the 1992 annual meeting of CDA's board of governors.

Hundreds of resolutions and information items from CDA's 17 committees, three councils, and more than a dozen affiliate organizations were considered by the board during the two-day meeting, held in Calgary August 28-29 in conjunction with the CDA convention. Particular emphasis was given to:

CDAnet

CDAnet is about to become bigger and better.

Value-added services – including order entry, electronic banking, credit card

3M
HAS TURNED THE TIDE IN RESTORATIVE DENTISTRY

Experience the New 3M Restorative Z100 and Scotchbond™ Multi-Purpose Adhesive

9206MG2255E

Innovation working for you™

3M

draft capture and electronic mail – could be added to the network by as early as January 1993, explained Dr. Don MacFarlane, the chairman of the CDAnet committee, in his report to the board.

Dr. MacFarlane's committee, with the approval of CDA's executive council, is currently negotiating with VCS Technologies Inc. to design value-added services for the CDAnet system. The Calgary, Alberta-based company is already providing similar services to Eclipse, a joint venture of four of Canada's major group benefit providers.

To date, 1,009 dentists in 558 offices are using CDAnet, and 21 software companies have completed certification with both CDA and the participating networks – Shared Health Network Systems and National Data Corporation.

Eight insurance companies – Sun Life, Great West Life, Confederation Life, National Life, Canada Life, Mutual Life, AEtna and the Alberta School Employee Benefit Plan – are currently processing claims on real time, while Metropolitan Life and Manulife are processing claims on a batch time basis.

Management of Hazardous Materials in the Dental Office

After more than two years of intensive investigation and study, CDA's committee on community and institutional dentistry has completed a 144-page manual on the management of hazardous materials in the dental office.

Written on CDA's behalf by Dr. Wim Oudshoorn, the manual is designed to inform dentists about current federal, provincial, territorial and municipal regulations on the transport, disposal and storage of hazardous materials.

Due to the wide variations in federal, provincial and municipal hazardous materials legislation, the committee on community and institutional dentistry, chaired by Dr. Jack Gryfe of Toronto, consulted with dental authorities from across Canada before finalizing the manual and presenting it to the CDA executive council for approval. It will now be sold to interested dentists on a cost recovery basis.

Fluoridation

A special president's letter, which will contain a complete list of the recommendations released by the Canadian Conference on the Evaluation of Current Recommendations Concerning Fluorides, as well as other pertinent information on fluoride, will be distributed to CDA members this fall.

The letter's intent is to provide members with information to counteract the negative publicity expected as a result of an upcoming television program on fluoride, which has also been the subject of a number of recent newspaper articles. Similar letters have been used in the past to alert members to public concerns over the use of mercury amalgam and the perceived need to sterilize dental handpieces.

CDA's board of governors has given approval in principle to the fluoride recommendations developed by the conference, and will use them in reviewing the association's current policy on the use of fluorides.

The recommendations were developed following a national conference on fluorides, which was held in Toronto April 9-11. Sponsored by Proctor and Gamble/Crest, Lederle Laboratories and various government agencies, the conference was attended by dental public health and pediatric specialists from across North America. Its goal was to determine how various sources of fluoride can best continue to contribute to the prevention of tooth decay in the general population.

Infection Control

CDA's board of governors has passed a resolution to improve infection control in the dental office.

Presented to the board by the committee on community and institutional dentistry, the resolution stated:

THAT the CDA Recommendations for Infection Control be amended to state that heat sterilizers should be biologically monitored as to their effectiveness at least on a monthly basis, and that a log of this monitoring be maintained.

Recognition Program for Sugarless Chewing Gum

Based on the recommendation of its committee on consumer product recognition, CDA has approved the introduction of a "Silver Seal" recognition program for sugarless gum.

The committee's recommendation was made on the basis of recent scientific evidence, which demonstrates that the prolonged chewing of gum has beneficial oral health effects. In his report to the board, committee chairman Dr. Michael Eggert said that it is now as valid to support the promotion of chewing gum as it is to support the promotion of brushing and flossing.

The manufacturers of sugarless chewing gum, providing their product passes the criteria and testing of the committee, may now include the CDA seal and the inscription, "Recognized by the Canadian Dental Association," on their product packaging.

At its 1991 annual meeting, the CDA board of governors approved a proposal by the committee on consumer product recognition for a two-tiered recognition program, which included both Gold and Silver Seals.

Some brands of chewing gum may be awarded gold-seal status in the future. This will occur if there is clear clinical evidence that the use of these products has a therapeutic oral health effect (i.e. that they act to prevent caries). Some studies have already shown that xylitol may act as a caries preventive agent.

Silver seal status is linked to the fact that chewing sugarless gum does not promote caries.

Guidelines for Referring Patients to Dental Specialists

CDA's board of governors has given its full support to a standard referral form developed by the dental specialties committee.

In the past, dentists have used several different approaches for referring patients to dental specialists – ranging from providing the specialist with no referral information to making exhaustive reports.

To rectify this situation, the committee, chaired by Dr. Ian Vogan, spent considerable time and undertook exhaustive consultations to develop a set of referral guidelines and a standard referral form for the dental profession. It is hoped that both the form and the guidelines, to be distributed to CDA members in an upcoming issue of *Communiqué*, will be used on a routine basis by general practice dentists.

Supervision of Dental Hygienists

CDA has given its approval to a new six-point position statement on the supervision requirements for dental hygienists.

The statement, which required several years to develop, is based on long, intricate consultations with dental hygienists, CDA's corporate members and the licensing authorities. The text of the new statement reads:

CDA Position Statement On Supervision Requirements For Dental Hygienists

1. The dentist is accountable for the patient's overall oral health care and coordinates delivery because he or she is prepared and qualified to provide a

comprehensive differential diagnosis of oral health status, to plan and render treatment required, to delegate or refer specific aspects of treatment or to refer the patient to another dentist or physician.

2. Comprehensive oral health care requires differential diagnosis and treatment planning by a dentist. Services provided by a dental hygienist are one component of comprehensive oral health care and should not be offered independently, but as part of a comprehensive treatment plan.

3. Optimal care is achieved when there is an effective working relationship between the dentist and dental hygienist. Comprehensive patient oral health care cannot be achieved if the dental hygienist is an independent practitioner.

4. Every individual has a fundamental responsibility for his/her own health and should be an active participant in achieving optimum oral health.

5. Actual working relationships between dentists and dental hygienists in the provinces of Canada are the responsibility of provincial dental licensing authorities.

6. Dental hygienists licensed by dental licensing authorities should have representation, with full rights and responsibilities, on the board of the dental licensing authority.

Tooth Whiteners

With the backing of the CDA board of governors, the committee on consumer product recognition will develop an official CDA policy statement on cosmetic and drug claims as they relate to oral health care products.

The committee is concerned that the federal Department of Health and Welfare has not responded to its request that tooth whiteners be classified as drugs rather than cosmetics. In the United States, the Food and Drug Administration (FDA) has already moved to classify teeth whiteners as drugs. ■

CDA Recognizes the Achievers

Honorary Membership

The highest award of CDA, honorary membership recognizes individuals deemed to have made outstanding contributions to the art and science of dentistry or to the dental profession over a sustained period of time. This year, two dentists received honorary membership in CDA, Dr. Gordon Nikiforuk of Toronto, and Dr. William McIntosh, also of Toronto.

Honorary Membership: Dr. Gordon Nikiforuk (l.) and Dr. William McIntosh (r.)

Distinguished Service Award

CDA's distinguished service award recognizes outstanding contributions to the dental profession at the corporate, specialty society, council or committee level. Four received the award this year: Dr. Michael Cripton of Moncton, N.B., Dr. Pierre-Yves Lamarche of Laval, Quebec, Mr. Ross McIntyre of Winnipeg, Manitoba, and Dr. Donald Woodside of Willowdale, Ontario.

Award of Merit

CDA's award of merit is conferred on individual CDA members who have served in an outstanding capacity in the governing of the association, or who have made similar outstanding contributions to Canadian dentistry. Five dentists received the award this year: Dr. Ralph Barolet of Montreal, Quebec, Dr. Pierre Dow of Geneva, Switzerland, Dr. Ronald Smith of Duncan, B.C., Dr. Jack Thompson of Rothesay, N.B., and Dr. Bill Bedford of Ottawa, Ontario.

Distinguished Service Award: (l. to r.) Dr. Lamarche, Dr. Woodside, Mr. McIntyre, Dr. Cripton.

Dr. Ron Smith receives his Award of Merit from CDA president-elect, Ray Wenn. Drs Barolet, Bedford, Dow and Thompson were unable to attend the awards ceremony.

Dr. Robert Brandon Receives Canada Volunteer Award

Dr. Robert Brandon, of London, Ontario, accepts the "Canada Volunteer Award" from CDA past-president Dr. Les Allen.

A London, Ontario, dentist has won the Canada Volunteer Award Certificate of Merit from Health and Welfare Canada.

Dr. Robert (Bob) Brandon received the award from CDA's president, Dr. Les Allen, during the association's awards luncheon August 28 in Calgary.

In a letter to CDA, the federal minister of health, Benoit Bouchard, said: "The certificate is awarded each year to recognize and encourage those who have made valuable voluntary contributions toward improving the health and social well-being of their fellow citizens."

Dr. Brandon, a 1974 graduate of the University of Western Ontario faculty of dentistry, has devoted countless hours and boundless energy to improving the well-being of his fellow dentists and his community.

"Dr. Brandon was awarded this certificate because he has demonstrated leadership both in developing new programs, such as the marathon drop-in centre for wayward youth, and in working with and expanding the scope and development of many local and professional organizations. Most notable is Dr. Brandon's involvement with the Ontario Dental Association's "Dentists at Risk Committee," where he has dedicated hours too numerous to count to assisting members of his profession in need of assistance and counselling due to personal or emotional problems. He has demonstrated his ability to mobilize the resources, both human and material, necessary to achieve success in developing programs in all aspects of professional and community services," said Dr. Allen.

In accepting the "Canada Volunteer Award," Dr. Brandon emphatically indicated that he was sharing the award with many others across the country who are similarly involved with dentist at risk programs. ■

CDA Board Calls for A Unified Canada

CDA's board of governors has come out strongly in favor of a unified Canada that includes the province of Quebec. During its annual meeting August 28-29 in Calgary, Alberta, the board unanimously passed the following resolution:

"The Canadian Dental Association believes in a Canada that includes Quebec and encourages the members to support this concept in their practices."

Dr. Les Allen, CDA's president, told the board, "It is very, very important, as a national organization, that at this time the Canadian Dental Association makes its position known."

Canadians will have an opportunity to express support for a unified Canada in an October 26 plebiscite, which will ask them to respond yes or no to the following question: "Do you agree that the Constitution of Canada should be renewed on the basis of the agreement reached August 28, 1992?"

The 1992 national plebiscite will be only the third in Canada's history. In 1898, Sir Wilfred Laurier's Liberal government took the question of prohibition – forbidding the manufacture and sale of alcohol – to the Canadian public. The result was so close, 51.3 per cent of Canadians voted Yes, and 48.7 per cent No, that the government decided to leave the matter to the provinces to decide. In 1942, Mackenzie King's government, which had promised not to draft men for military service overseas, asked to be released from its pledge. Nationally, about 65 per cent of the voters said Yes, but there was a strong anti-conscription vote in Quebec. While conscription did go into effect, in the final outcome few draftees ever went into combat. ■

The Dawn of a New Era in Patient Education

Did You Miss It?

Patient Education For The Nineties

October 1991 marked the dawn of a new era in patient education. The signal event? The launch of CDA's Dental Information System.

Every dentist in Canada received a brochure that introduced the system: what it is, how it works, and how it can work for you.

Hundreds have already contacted CDA for more information or to place their initial order. Here's your opportunity.

The Dental Information System is patient education for the Nineties. It's what dentists told us they needed. What patients told us they wanted. It is dental information redefined: the way it looks, the way it's organized, the way it's read, the way it works.

And it's available now.

Call CDA Toll-Free Today

You can order individual booklets, the whole series, or the custom designed display rack. CDA members save 25% on everything.

WHAT HOW WHEN WHY
THE DENTAL INFORMATION SYSTEM

The Dental Information System: clear, comprehensive, useful and friendly

•8 booklets, 12 pages each (5" X 8") •rigorously reviewed by dental experts •wide range of topics
•easy access indexing system •boxes, charts and photography that make information lively
•custom designed plexiglass rack (24" X 24" square)

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

Call: 1-800-267-6354 (Western Canada, Newfoundland, and Labrador)
1-800-267-6364 (Eastern Canada)

Colgate™

The Dental Information System has been made possible through the generous assistance of Colgate Palmolive.

FINALLY THERE'S A REALLY EFFECTIVE SOLUTION FOR SENSITIVE TEETH!

NEW SENSODYNE® DESENSITIZING SOLUTION.

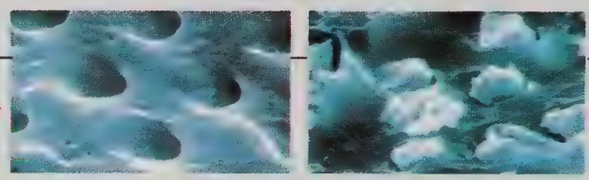
Stops pain fast in the office.

New Sensodyne Desensitizing Solution is the fast, easy, really effective way to treat sensitive teeth right at chairside. A single application takes only 60 seconds, provides relief in minutes and lasts for months.

ON-THE-SPOT RELIEF FOR SENSITIVE TEETH.

Continues relief at home.

Recommend regular brushing with Sensodyne-F – the most trusted home treatment for sensitive teeth. Sensodyne Desensitizing Solution and Fluoride Toothpaste have complementary modes of action that enhance and prolong relief.



Before Treatment

After Treatment
Ferric Oxalate* obturates open dentinal tubules.

In the office and at home ***Sensodyne®***

*See your Block Drug rep for clinicals.

Complete care for sensitive teeth.

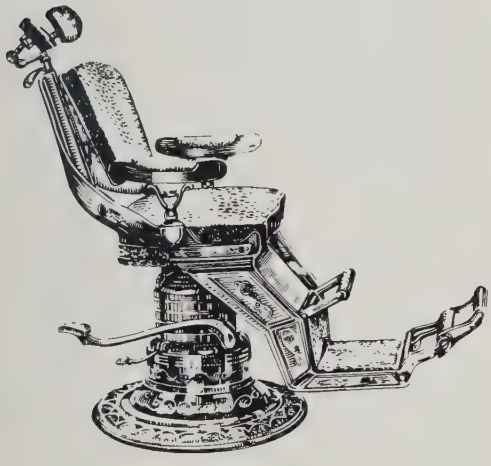
1-800-268-5747

BLOCK DRUG COMPANY (CANADA) LTD.
7600 Danbro Cres., Mississauga, Ontario L5N 6L6

CDA – 1902-1992 – 90 YEARS OF LEADERSHIP

In March 1902, Dr. Eudore Dubeau, the secretary of the Quebec Dental Association, invited every dentist in Canada to participate in a meeting to plan a national dental organization. His words are as challenging today as they were 90 years ago: "Every dentist in Canada who can rise above mere local or provincial affairs in our country, and has thought about the immense advantages to be gained by the nationalization of the dental profession, should unhesitatingly give the idea their support."

In September 1902, 344 dentists from across Canada – or one in every five of the nation's dental practitioners – accepted Dr. Dubeau's invitation and convened at McGill University in Montreal. By the end of their three-day meeting, they had established the Canadian Dental Association (CDA).



The ideals and achievements of CDA's founding fathers are as valid today as they were 90 years ago. Remarkably, that very first meeting not only created a unified voice for Canadian dentistry, but a professional code of ethics, the genesis of the Dominion Dental Council – and the national certification program that was the forerunner of today's National Dental Examining Board – and a plan for the formation of the world's first army dental corps.

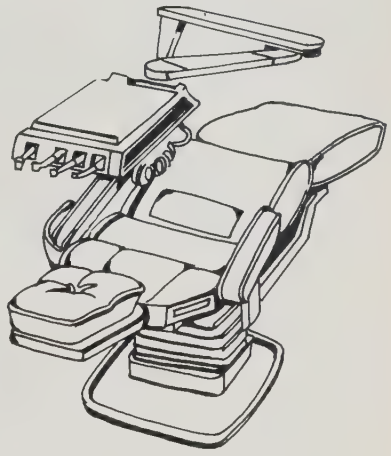
CDA has responded to the dental needs of a nation and the interests of its members for nine decades. In the midst of the depression of the 1930s, for example, CDA was instrumental in creating a national commission on economics. It was also during these tough times, in 1935 to be precise, that the *CDA Journal* was launched, beginning CDA's tradition of publishing quality dental literature.

Throughout the years, CDA has maintained a continuous presence, both vocally and visibly, in Canadian public health. In 1940, the association represented the dental profession when a royal commission was formed to review the nation's health care system. From the late 1940s through into the early '50s – and even today – CDA has been Canada's greatest advocate of fluoridation and caries prevention.

In 1945, CDA developed a process for recognizing dental specialists, and in 1950 the association instituted an accreditation system that assured "the sacred trust" of dental education. When third-party insurance was introduced in the early 1960s, a CDA committee developed a system of codes, lists of services and standard claims forms that became a benchmark in the dental world. Thirty years later, history repeated itself. CDAnet set the standard for the electronic interchange of dental data and insurance claims.

Another major insurance milestone was reached when CDA gave birth to Canadian Dental Service Plans Inc. (CDSPI), some 30 years ago, beginning an enviable history of "insurance by the dentist, for the dentist."

CDA's leadership has been a continuum of firsts. In 1977, the association formed a council on student affairs, and a student representative was given voting status on the CDA board of governors. By doing so, CDA became the first dental association in the world to give students a full, equal voice in organized dentistry.



Another first was CDA's Dental Awareness Plan, which was launched in 1985. Its success is indicative of the 90 years of preventive dental cooperation that has existed between organized dentistry, government, industry and the public.

Today, in a rapidly changing global environment, CDA's role is still leadership. As the national "voice" of dentistry, CDA's message is heard loud and clear on all fronts. Whatever the issue of the day – infection control, taxation, busyness or mercury amalgam – CDA communicates dentistry's views in a positive, informative and proactive way.

CDA is proud of its 90 years of leadership, and looks forward to meeting the challenges of the 21st century.

P. Ralph Crawford, BA, DMD
Editor of the Journal of the Canadian Dental Association

October is CFDE month

Thirty years of service

In 1962, fluoridation was an important issue in dentistry. Plebiscites were being held in Canadian municipalities, and studies on the effects of fluoride were being conducted by the dental profession. That same year, the Canadian Fund for Dental Education (CFDE) was established.

Today, fluoridation remains a concern for the dental profession, although other prominent issues – including AIDS and infection control – are in the spotlight as well. One thing that has remained constant for 30 years, however, regardless of the current issues, is CFDE's continued support for research and dental education programs.

During the last 30 years, CFDE has raised more than $3.5 million in support of various projects in dental awareness, education and research. Everyone has benefitted: the dentist, the student, the auxiliary, the dental industry, and ultimately the general public. CFDE was founded by forward-thinking members of the dental profession and representatives of the dental industry. People who saw the need for a central organization to raise funds for dental education and for research directed at improving the oral health of Canadians. As a result of their efforts, CFDE was formed under a deed of trust administered by the Canadian Dental Association, and was managed, originally, by five trustees.

CFDE addresses needs of the day

In its early years, CFDE worked to encourage and assist dental education. The fund provided grants to each of Canada's dental schools, so that students and educators could undertake worthwhile projects that were not included in the universities' limited budgets. At the time, Canada was faced with a shortage of dentists. The ratio of dentists-to-population in 1963 was actually lower than it was in 1921.

Over the years, the focus of CFDE has reflected the changing needs and concerns of the dental profession, and it continues to sponsor programs that are important to dental education and research today. For instance, past CFDE-funded programs have included CFDE/CDA teaching conferences on topics such as, "Oral Biology; Control of Pain and Anxiety"; "Hospital Dentistry"; "Ethics in Dentistry and Dental Education"; and "Periodontics."

Other projects, like the CFDE/CDA Infection Control Guide, addressed the ongoing need for up-to-date information on research that has a profound effect on practitioners and dental auxiliary staff, as well as patients. To date, CFDE has allocated over $254,450 to dental health month, infection control and other dental awareness programs.

Whatever the needs of the dental community have been, CFDE has been there to help fund the related programs.

CFDE supports current programs

In 1992, CFDE continues to carry out its mandate by responding to the present funding needs of dental education and research programs. Among the programs receiving grants this year are:

- $8,000 to the CFDE/CDA Teaching Conference on Pediatric Dentistry, which includes workshops on teaching traditional/fundamental pediatric dentistry, research projects in pediatric dentistry and dentistry for the special-needs population.
- $31,600 for the Association of Canadian Faculties of Dentistry (ACFD) Summer Teaching Institute, which provides professional development programs, including workshops on the case-method teaching format.
- $35,000 in teacher/researcher fellowships, which supports projects such as the one at Calgary's Foothills Hospital to establish and monitor a preventative oral care program for a large extended-care facility.
- $11,000 to the CDA/CFDE Canadian Dental Students' Conference, which brings together the student representatives of dental schools across the country to learn about organized dentistry in Canada.
- $7,000 to the National Dental Epidemiology Project, to establish a data bank that will demonstrate the present and projected oral health disease patterns of Canadians.

CFDE's endowment funds also support a variety of dental education and research programs. The Dr. Nicholas A. Mancini Fund and the Dr. G.W. Barrett Memorial Fund provide grants to undergraduate dental and dental hygiene students in urgent need of financial assistance. The Dr. Lorne E. MacLachlan Endowment Fund provides financial assistance for teacher education and training in removable prosthodontics and maxillofacial prosthodontics at four Canadian dental faculties.

As well, the Murray McDonald Endowment Fund sponsors an annual lecture at the CDA Convention. The guest speaker at this year's convention, held in Calgary, was Sharon Wood, who in 1986 became the first North American woman to climb Mount Everest. The theme of her keynote address was teamwork and the ability to meet challenges and achieve goals – "with a desire to seek out, recognize and value challenge. To strive to make a difference in our own lives."

What about the future needs of dentistry?

This year marks the 30th anniversary of CFDE. And while it is important to remember what the fund has accomplished already, it is equally important to look at what lies ahead. Research conducted today will provide the profession with the new methods, materials and tools it needs for the future.

CFDE is working diligently to provide continued support to dental professionals in the areas of research and education. But we can't do it alone. We need your help.

During October, CFDE will once again be asking for your support. Dentists and dental hygienists across Canada will receive letters asking them to make a contribution toward CFDE's programs, which benefit dental education and research, and through them the future of the dental profession.

PLEASE GIVE GENEROUSLY

For further information, please contact the Canadian Fund for Dental Education, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6, or call 613-731-0493. ■

Yours in Dentistry,
Dr. Gordon W. Thompson
Chairman, Canadian Fund for Dental Education

CFDE FCED

Hiring the Best and the Brightest

Have you ever hired someone who you truly believed was exactly the right person to complement your dental team only to discover, a few months down the road, that you had made a colossal mistake? It's a harrowing, though very common, experience to learn that the individual you were relying on to breathe fresh air into your practice has instead taken the wind out of its sails.

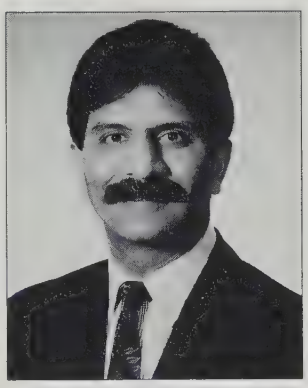
Whether they're not stimulated by the work, defiant about following office procedures or the instigator of staff conflicts, this individual's presence can have an insidious effect on the health of your practice. You may decide to rectify the situation by dismissing the person, or they may decide to leave. But this really isn't the issue. The most important concern, here, is that you have a staff turnover problem, a problem that can cost the practice a great deal in lost productivity.

Staff turnover does more than drain the practice of time and money, it affects patients, too. Most patients like to see the same staff members (assuming these individuals are kind professionals) on an ongoing basis. In fact, long-term employees are one of the best advertisements you have for conveying practice stability.

Lost time, lost productivity and substantial frustration go hand in hand with hiring mistakes. But hiring staff doesn't have to be a harrowing experience. When you allot adequate time and planning to the hiring process, the chances of choosing the right person increase dramatically. And although it's not a fail-proof system, it, like the old adage says about democracy, is the best system we've got.

Shifting Your Hiring Paradigm

Staff turnover is not a management problem unique to the dental profession. It's experienced, to varying degrees, in all human organizations. But because dentistry tends to be afflicted by high staff turnover, it could learn a great deal from the corporate world,



Imtiaz Manji
B.Sc.
President of ExperDent Consultants Inc.

which has been markedly proactive in tackling this management malady.

Anyone who has recently applied for a position with a small, medium or large corporation can attest to the comprehensiveness of corporate screening techniques. Business has adopted a rigorous hiring process, which often includes multiple interviews and even examinations. It can take weeks, and sometimes months, before a successful candidate is chosen. The results of this long, drawn out hiring exercise are by no means certain. It's done in the *hope* of maximizing the chances of selecting the *right* person.

Although dental practices seldom have the luxury of time – or a personnel department – to handle this seemingly microscopic inspection of candidates, they can successfully manage the selection process by "stealing" some tricks from the human resources trade.

The first trick is understanding why it's vital for you to invest so much time and energy in selecting staff. There's no magic involved, all you have to do is respond to a very basic question: Why not hire the first candidate who meets your job requirements? Unfortunately, the answer, while simple, is often lost on dentists, particularly those who are eager to fill a position and "get back to work."

Consider what would happen if, instead of spending an excessive amount of time trying to "fix" the problems created through hiring the wrong personnel, you invested the time needed to hire the right people in the first place. You'd find that the need to "fix" anything was greatly reduced, if not eliminated all together. What may have seemed to be a long, drawn out hiring process initially would prove to be very worthwhile in the long run. It, like preventive dentistry, is the most cost effective route.

Recognizing that you need to invest time and effort to hire the right person is just the beginning, however. The next step is to take a planned, systematic approach to selecting the right person. Throughout this process, keep these questions in mind: 1) What kind of staff member am I looking for?; 2) Where will I find this person?; and, 3) How will I make my final selection?

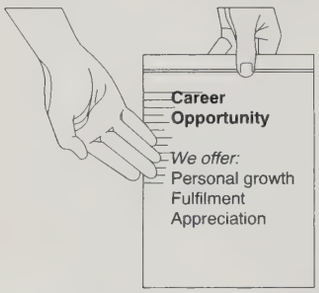
What kind of staff member are you looking for?

Having general ideas about the type of person you're looking for isn't good enough. You have to hone in on the particular qualities you want in a staff member. Certainly, you're seeking someone who has the requisite knowledge, experience, training and skills to do the job. But as impressive as an individual's credentials may be, on their own they're simply not enough. You should pursue a candidate who, in addition to the right credentials, has a progressive attitude and the personality characteristics that will allow them to mesh well with your existing team. Take the time to do an inventory of the strengths and weaknesses of your staff. Armed with a list of their strengths, seek to find a candidate who mirrors these.

Start by writing a profile of the ideal candidate, as well as a specific job description that details the tasks you expect the new person to perform. When you have established a profile of the position, and the type of person you're seeking, you'll have a benchmark to measure potential applicants against. For example, if you're looking for a continuing-care coordinator to manage your hygiene recalls, you'll need someone who has: excellent communication and organizational skills, confidence, a cheerful disposition, a professional phone manner and the ability to moti-

vate patients. (Ask your staff for input here, they could have ideas that you haven't thought of.)

Where do you find potential candidates?



Suitable applicants can be found from the following sources: recommendations from colleagues or other professionals, dental supply reps, local colleges and universities, placement agencies and classified ads. If you advertise, incorporate your description of the ideal candidate into an attractive, effective, prominently-placed ad that highlights the internal rewards – personal growth, fulfilment and appreciation – that the job offers. Don't mention salary and benefits in the ad, as these matters are best discussed in an interview.

The Critical Stage: The Interview

So, you've got the word out, somehow, that you're looking for a new addition to your team, and you've received responses from a number of applicants. The real work starts here – with the interview process.

One of the biggest failings of employers, dental and non-dental alike, is their belief that the candidates are the only ones who need to prepare for a job interview. But the interview is an opportunity for both parties to "sell" themselves. You need to approach hiring on the basis of what each party has to offer the other. You have to be a buyer – of the employee – and sell that individual on your practice all at the same time.

To do this, you must identify what your practice has to offer a prospective employee – everything from practice values, philosophy, goals, and benefits, to performance incentives. Make sure you articulate this uniqueness in the interview. Demonstrate to the applicant that working at your practice is an opportunity for untold professional success and growth.

Selling yourself, though important, should be done succinctly. Interviewers who talk more than 20 per cent of the time are entering the danger zone. The interviewee, guided by a set of pre-determined questions, should have the floor for the overwhelming majority of the interview. Ask them mostly open-ended questions that require them to "think on their feet." For example, asking an employee, "How do you deal with stress and can you offer some examples?" is much more revealing than, "Can you handle stress?," which demands only a yes or no response.

Gear your questions toward capturing information about each of these relevant categories: experience, education, skills, intelligence, attitude and personality. Don't focus largely on one area at the expense of the other. For instance, if you're overly smitten with an applicant's academic credentials, you might neglect to probe them about their attitude. Later, when it's too late (i.e. after the applicant has been hired), you may discover that this individual is a clock watcher – definitely not the type of person you want in your practice. (Look to the attitude category to signal whether someone is a team player, accountable, self-managing, etc.)

A word of caution when it comes to interview questions. Stick to seeking information that is relevant to the job at hand, and be careful not to let discriminatory questions creep into the process. Discriminatory hiring practices can be costly to employers, as they can lead to back pay claims and/or fines. If you want to be sure that you're not inadvertently asking the wrong questions, get a copy of your provincial human rights act or consult your lawyer. Examples of "hot potato" questions vary from province to province, and range from asking an interviewee their age to probing a female applicant about her plans for child care while she's at the office.

There are creative ways to get the information you're after without risking a future court case. For instance, if you're curious about child care plans, you could ask the applicant if there are any circumstances that will prevent him or her from meeting their job requirements. This may or may not give you the precise information you want, but short of offending the interviewee and possibly breaking the law, it's all you can do.

Making a Decision

Hopefully, by the time you've done your interviewing, you'll have narrowed down the choice to two or three suitable candidates. It may be tempting to choose the one who made the best first impression, but you should resist this lure. We all know how dangerous first impressions can be.

If you really want to give your candidates an opportunity to prove that they're the best person for the job, invite them (one at a time) to your practice for a few hours. Let them get to know your staff, talk to people who have held or hold the same job, and review your policy and procedures' manual. You may even want to have them "show their stuff" (and pay them for this). For example, if it's a continuing care coordinator vacancy, coach applicants on how you would like this managed and then hand them a list of patients to call. After they've called 50 to 100 patients, you'll have an idea of how they handle this all-important task (and particularly how they deal with rejections). Having the candidates spend time at your practice will prove a telling exercise for all parties.

After consulting your staff on their opinions of each candidate, and weighing all the information you've gathered, you should now be well positioned to make the final selection. Hire your new staff member on a probationary basis. Whether it's three months or six months, this period – which reveals the skills, personality, attitude and potential of the employee – is of untold benefit. It gives both employer and the team a chance to observe the true colors of the new addition, and to determine whether there is a match between that person's skills and the practice's needs.

Summary

Successful dentistry in the nineties demands a well-trained staff who are effective decision makers, team players and committed to excellence. The key to fulfilling this order begins with you, the dentist. It is incumbent on you to invest serious time and thought into the selection of staff. If you do so, you'll likely be surrounded by people who will turn your vision into reality. If you don't, you'll be caught in a staffing quagmire, and your practice vision will remain all-elusive. ■

PREFERENCE® II: THINK OF IT AS ANOTHER TOP-QUALITY A-DEC DENTAL TOOL, NOT JUST ANOTHER CABINET.

When the industry leader in dental equipment sets out to make a furniture system specifically developed for the dental office, you can be sure it's more than just another piece of cabinetry. After all, when your equipment bears the A-dec name, you know that only the most stringent guidelines and functional engineering were followed from concept through design through manufacturing.

That's why Preference II is made from high quality cabinet board. That's why you'll find a digital clock and task lighting on most every unit we make. That's why Preference is designed to be water-resistant – inside and out. Details, details, details. It's the little things like this that transform a common piece of cabinetry into the industry-leading dental storage and work area.

And work it does. It organizes. It adapts to space and budget. Its simple beauty and clean lines make a professional statement about your entire practice. You'll see a storage system and work space unsurpassed. Your patients see an organized, professional office from top to bottom. And just as important is what your patients won't see. Assistants running in and out of the treatment room to re-stock. Interruptions while instruments are located. Cluttered countertops and haphazard storage. Preference II is designed to eliminate all that, giving you the ultimate in flexibility – readily adapting to any practice, any space, any treatment style.

For further flexibility, Preference is available in six distinct units, each with a specific function. Buy a single unit and it works just fine on its own, or mix and match to equip an entire facility to best suit your own specific needs.

From sink to soap dispenser, drawers, doors and countertops, every piece of Preference dental furniture is built to stand the test of time – and hard use. Visit your authorized A-dec dealer for a free 16-page everything-there-is-to-know about Preference guide and a look-see in person. Day in, day out, Preference performs.

a-dec®

A-dec, Inc., P.O. Box 111, 2601 Crestview Dr., Newberg, OR 97132 USA, (503) 538-9471, Fax: (503) 538-5911. © A-dec, Inc., 1992. All rights reserved.

"The transition to CDAnet was effortless. It works perfectly with our existing computer system. And it makes my job a lot easier."

Andrena Rodger
Office Manager
Toronto, Ontario

CDAnet...
A REVOLUTIONARY ADVANCE IN CLAIMS PROCESSING

CDAnet is now at work in hundreds of dental offices across Canada. And it is delivering on its promises: speedy claims processing, quick claims payment, and satisfied patients.

CDAnet – a revolutionary advance in claims processing.

Get it working for you.

For more information call:
1-800-267-9701.

CDAnet™
Dentistry's National Information Network

Book Reviews

Pathways of the Pulp

Edited by Stephen Cohen and Richard C. Burns

5th edition, 1991, Mosby Year Book Inc., St. Louis, MO.,804 pages, $94.25 (U.S.)

This book is a virtual encyclopedia of current endodontic information. It is a comprehensive reference textbook which encompasses all aspects of the biologic basis and clinical procedures of endodontics. All chapters in this latest edition have been revised, updated or completely rewritten by an impressive collection of 36 well-known and respected clinicians, teachers, and researchers. It will be of interest to dental students (graduates and undergraduates), general dentists, and endodontists.

The material is presented in a clear and concise manner, and is profusely illustrated with 2,327 photographs, drawings and photomicrographs (and two color plates). Without question, these illustrations are among the best in the current endodontic literature. An example of some of the outstanding artwork in this textbook may be found in Chapter 6 where tooth morphology and access openings are beautifully illustrated and completely up-to-date.

Generally, the text is well-organized. However, the manner in which the text has been arranged and the use of multiple authors may create minor annoyances, as information on certain topics is repeated in different chapters. For example, basic diagnostic procedures are described in five chapters: 1, 2, 15, 22 and 23. To be fair to the editors, these repetitions are unavoidable. And each time a topic is repeated, it is done within a different context and from another perspective. This can be very positive, because the examination of topics from varying perspectives will provide more information and enhanced insight into these areas.

Another feature in this book is the addition of self-assessment quizzes at the end of each chapter. Also of interest to students are the chapters on embryology, pathology and microbiology, which have been presented in considerable scholarly detail. Conversely, the chapters on instruments, materials and devices, and cleaning, shaping and obturating canal systems will be of particular interest to most practising clinicians.

This latest revised and updated edition is highly recommended as a valuable addition to the library of students and clinicians who are involved in the art and science of endodontic therapy.

Reviewed by:
Martin Gelfand, DDS, FRCD(C)
Associate professor, faculty of dentistry, department of endodontics, University of Toronto

Periodontal Disease: Pathogens and Host Immune Responses

Edited by S. Hamada, S.C. Holt, J.R. McGhee

1991, Quintessence Publishing Co., Inc. Chicago
410 pages, B & W illustrations, one color plate $63 (U.S.)

This is a multi-author work — written by recognized authorities — that describes the important pathogens associated with the periodontal diseases and the host response to these pathogens. The editors have taken material submitted by more than 100 scientists and arranged it in a reasonably consistent and logical manner. This book presents a detailed account of the etiology, pathogenesis and diagnosis of periodontal diseases, and could be very useful for educators and scientists who work in these areas. The accounts are up-to-date (1990 references are included), and there is also some interesting unpublished data which adds to the the text.

The book is organized into five major subject areas: the etiological role of bacteria, virulence actors, host responses, the role of cytokines and the application of knowledge to diagnosis. Each of these major subject areas is divided into 5-7 chapters. The chapters are consistently organized so that each chapter has an introduction, a description of recent advances, and a conclusion. As well, some chapters present hypotheses and then provide evidence to support the hypotheses. For example, Saglie discusses the tissue invasion model of periodontitis and links the "Burst" of disease observations with the invasion of tissue by pathogens. Such hypotheses are welcome, as the book suffers from excessive experimental data with no clear-cut attempt to explain the findings or clarify what significance these data may have for our global understanding of pathogenesis.

The rapid growth of knowledge in the field of periodontal pathology neccessitates a periodic review of what has been learned and the direction in which we are moving.

This book provides a very good description of the progress which has been made. However, clinicians may want to have more knowledge of how this applies to the future practise of periodontology. For this reason, and the specialized nature of the data sets, this book may be best appreciated by academics and graduate students of periodontology.

Reviewed by:
C.A.G. McCulloch, DDS, PhD, FRCD(C)
Professor, faculty of dentistry, University of Toronto.

Modern Concepts in the Diagnosis and Treatmant of Fissure Caries

by R.C. Paterson, A. Watts, W.P. Saunders, N.B. Pitts

1991, Quintessence Publishing Co., Inc., Chicago, Ill.
80 pages, 91 color illustrations, $40 (U.S.)

This small but compact book provides the busy practitioner with an illustrated guide to the techniques and materials used in the management of fissure caries. Now that smooth surface caries have been dramatically reduced by fluoride regimens, the management of the inherently more susceptible fissure and pit lesions assumes a new importance. The choice of treatment options lies between prevention and restoration of a lesion. The four authors, who are all experienced teachers and practitioners, represent both preventive and restorative views, thus ensuring a good balance of presentation.

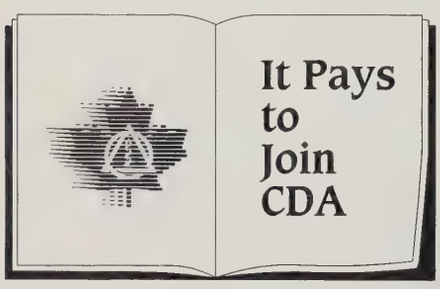
The introduction provides background information on the diagnosis

and management of early fissure caries, as well as summaries of the properties of new the adhesive materials. The second part of the text consists of a well-illustrated review of examination techniques and management options for fissure caries. The old criteria for the diagnosis of fissure caries, which relies on the "stickiness" of a probe, is discarded as being unreliable due to the variations in fissure anatomy. The need for a balance between "carrying out unnecessary treatment and failing to treat active lesions until a late stage" is stressed throughout. The last part of the book is devoted to the new treatment methods: when to observe, when to use a sealant, when to use composite resin sealant, indications for glass ionomer cement/sealants, laminates and amalgam restorations.

The authors stress that the prime objectives of the treatment techniques described is to reduce the destruction of tooth substance. The use of sealant restorations permits preparations to be limited to the removal of stains and caries, since extension for prevention and for mechanical retention is not necessary. The authors also discuss how to manage fissures with no evidence of caries, where enamel cavitation exists, and where lesions extend into the dentin with limited or extensive lateral extensions.

The management of fissure and pit lesions is an important task for every general practitioner. This book will provide practitioners with an up-to-date summary of how to assess the whole mouth, how to diagnose fissure lesions, and what type of restorative material or sealant to use for each category of fissure lesion. It is especially recommended for those practitioners who have not kept abreast of the field and require therefore a quick but effective reference.

Reviewed by:
Gordon Nikiforuk
Professor emeritus and past dean, faculty of dentistry, University of Toronto.



Brånemark System®

Authorized BRÅNEMARK SYSTEM® Dental Laboratories

Take Advantage of our Experience . . .

Aurum Ceramic Dental Laboratories Ltd.
Vancouver, British Columbia
1-800-663-1721

Aurum Ceramic Dental Laboratories Ltd.
Victoria, British Columbia
(604) 595-2314

Aurum Ceramic Dental Laboratories Ltd.
Calgary, Alberta
1-800-661-1169

Aurum Ceramic Dental Laboratories Alberta Ltd.
Edmonton, Alberta
(403) 423-1904

Aurum Ceramic Dental Laboratories (Sask) Ltd.
Saskatoon, Saskatchewan
(306) 665-8815

Bourque et Robert Inc.
Montreal, Quebec
1-800-561-6242

Canadian Associated Laboratories - St. John's
St. John's, Newfoundland
(709) 726-7686

Central Dental Laboratories (Barrie) Limited
Barrie, Ontario
1-800-461-7559

Classic Dental Laboratories Ltd.
Ottawa, Ontario
1-800-267-7040

De Luca Dental Laboratories
Willowdale, Ontario
1-800-268-6657

E. J. Pow Laboratories Inc.
Woodstock, Ontario
(519) 539-2065

Hub Dental Lab Ltd.
Moncton, New Brunswick
(506) 857-0465

Laboratoire Dentachrome Inc.
Quebec, Quebec
(418) 626-8888

Laboratoire Dentaire M.J. Inc.
Chicoutimi, Quebec
(418) 545-4155

Laboratoire Dentaire Morisset Inc.
Quebec, Quebec
(418) 529-9219

Laboratoire Dentec Inc.
Charlesbourg, Quebec
(418) 628-5039

Lafond & Marston Inc.
Outremont, Quebec
(514) 272-1158

Lafond, Desjardins et Associes Inc.
Laval, Quebec
(514) 669-9221

Le Groupe Dent-Esthérium
Ville St. Laurent, Quebec
(514) 744-4442

Lindberg & Homburger Dental Laboratories Ltd.
Toronto, Ontario
1-800-387-0092

Microdent Laboratories Ltd.
Woodbridge, Ontario
1-800-267-4292

Pro-Art Dental Laboratory Limited
Toronto, Ontario
1-800-268-6771

Pro-Dent Laboratory Ltd.
Halifax, Nova Scotia
(902) 422-8531

R. A. Baillie Oral Ceramiques Inc.
Ville St. Laurent, Quebec
(514) 748-7619

Rotsaert Dental Laboratory
Hamilton, Ontario
(416) 527-1422

Shaw Group
Toronto, Ontario
(416) 977-0700

Shaw Laboratories, Ltd.
Winnipeg, Manitoba
(204) 633-6102

. . . an invaluable part of your implant team

BRÅNEMARK SYSTEM® *is a registered trademark of Nobelpharma AB.*

CDA Convention • Toronto 1993
April 28 – May 1

CONVENTION UPDATE

It's happening this *Spring* – not next summer!

If you missed the 1992 CDA Annual Convention which was held in Calgary, you may have missed one of the more outstanding conventions of the decade. And for those who were there, I suspect many fond memories will remain long after the last exhibit booth was dismantled. In fact, some say this will be a 'benchmark' for conventions to come. The report of this event contained in next month's issue will give you a taste of what you missed (or may remember) and what the CDA Annual Convention is all about. That being said, the pressure is on: the 1993 Committee is faced with a challenge to match the success of the Calgary Committee, and deliver an event that will truly boggle your mind!

The 1993 CDA Annual Convention will bring CDA Conventions 'back to the drawing board' in more ways than one. It's a whole new team and a brand new city and take note, we are meeting in the **Spring** this year and ***not*** next summer. Furthermore, we are meeting from **Wednesday to Saturday** and not Saturday to Wednesday, as has been the case since 1989.

One key to our success in Calgary was the attitude the delegates brought to the convention – they were relaxed and at ease. It's an element we hope to incorporate into all future CDA Conventions. ***Fitness*** has been suggested as a general theme for the 1993 CDA Convention – fitness of the mind and body – and preparations are underway to put that concept into place for this event.

The 1993 Convention is taking shape as you read this article. The format differs somewhat from past years, but the excitement and educational opportunities it will offer to participants will remain the same. In addition, the new format will give the '93 committee members more opportunities to be creative, innovative and flexible – and all with an eye to satisfying your needs.

Pre and Post Convention Programs (limited attendance) will be offered on Wednesday and Saturday and provide participants with excellent educational opportunities. The 1993 Pre-convention program will feature Dr. Torsten Jemt, who will present a two-day implants hands-on course. A practice management seminar will also form part of the pre-convention program and another limited attendance session on restorative dentistry will be offered.

The **Convention Proper** will begin **Thursday, April 29th** with the opening of the Exhibit Hall at 9:00 a.m., in addition numerous scientific sessions offering a wide variety of topics will be offered in the morning and the afternoon on Thursday. (Read the blue pages of the *Journal* to keep abreast of details as they are confirmed.) The Exhibit Hall will be open again all day Friday and again, numerous scientific sessions will be available for all members of the dental team, in the morning and afternoon of this day. On Saturday, the Exhibit Hall will be open from 9:00 a.m. - 1:00 p.m., however lectures will be offered during the morning and afternoon.

This year the CDA Convention's scientific program will also include **'mini-clinics'**. These sessions will be scheduled in the mornings *and* afternoons on Thursday, Friday and Saturday. Table Clinics will also form part of the convention proper and be on exhibit in the morning and afternoon on both Thursday and Friday, and in the morning only on Saturday.

The **Social Program** for the 1993 CDA Convention will include the Opening Ceremony, to be held on Thursday evening. This event will be followed by a 'fun night' which all convention participants will be welcome to attend. The traditional formal dinner/dance, the President's Gala will be held on **Friday, April 30th**.

Once again, a Spouses' Program and a Children's Program will be offered and we hope many dental professionals will plan to bring their families with them to this event.

So, that's the scoop – plan to be there, for what could be the biggest dental convention ever held in Canada!

Michel Jahjah, D.D.S.
General Chairman
CDA Conventions

Canada's Wonderland, Toronto, Ontario.
(Photo compliments of MTCVA)

Preliminary Agenda • 1993 Spouses' Program

Thursday, April 29th

- Visit to the Royal Ontario Museum (ROM)
- Visit to Toronto's Harbourfront
- Lunch at the Harbour Castle Westin
- Luncheon Speaker – featuring a local astrologer
- Tour of the 1993 Convention Exhibit Hall
- Opening Ceremony

Friday, April 30th

- Walking tour of the SkyDome
- Lunch at the Windows Restaurant – SkyDome Hotel
- Fashion Show by Toronto designer/ couturier Heather Anderson

Friday, April 30th (continued)

- Tour of the CN Tower/Tour of the Universe Attraction

Saturday, May 1st

- Presentation by OPP officers on 'Street Smarts'

Those registered for participation in the spouses' program will also be eligible to purchase a ticket to attend a matinee performance of "Joseph and the Amazing Technicolour Dream-coat" on Saturday. This item will not be included in the price of the spouses' program.

A Ton of Fun!

The 1993 Children's Program

(for children 6 and over)

PRELIMINARY AGENDA

Thursday, April 29th

A full-day visit to the Metro Toronto Zoo including rides on the Zoomobile and a guided tour.

Lunch at McDonald's

Friday, April 30th

A full-day visit to the Royal Ontario Museum including a tour of the museum and the planetarium.

Lunch at the Museum.

Active Learning - Active Living

Preliminary Program for the 1993 CDA Annual Convention

The 1993 CDA Convention is shaping up to be one of the biggest and best ever! To give you an idea of what to expect, take a look at the speakers we have confirmed to date:

BERMAN, Marvin, DDS	*Chicago, Illinois*	Pedodontics
BOGHOSIAN, Alan, DDS	*Chicago, Illinois*	Dental Materials
BUCHANAN, Stephen, DDS, FICD	*Santa Barbara, California*	Endodontics
CASSELMAN, Barbie, BAA, FnCFS	*Toronto, Ontario*	Nutrition
CHRISTIANSON, M.L.	*Vancouver, British Columbia*	Chemical Dependency
CLARK, Christopher, DDS, MPH	*Vancouver, British Columbia*	New Recommendations on Fluoride
ETTINGER, Ron, MDS, DDS	*Iowa City, Iowa*	Geriatric Dentistry
FISCHMAN, Stuart, DMD	*Buffalo, New York*	Oral Medicine
HAILEY, Walter Jr.	*Hunt, Texas*	The Power of Persuasion
JEMT, Torsten, DDS, PhD	*Goteburg, Sweden*	Implants (Hands-on Course)
JUDD, Peter, BSc, DDS, Dip. Pedo., MSc. et al	*Toronto, Ontario*	Pediatric Dentistry
JUPP, Anita	*Burlington, Ontario*	Practice Management
KENNEDY, David, MSD, FRCD	*Vancouver, British Columbia*	Orthodontics/Pedodontics
LAMARCHE, Claude, DDS	*Montreal, Quebec*	Prosthodontics
LANG, Brien, DDS, MS	*Ann Arbor, Michigan*	Prosthodontics
LAVIGNE, Salme, RDH, MS	*Wichita, Kansas*	Implant Maintenance
LEINFELDER, Karl, DDS, MS	*Birmingham, Alabama*	Esthetic Dentistry
LINDER, Annette, RDH, BS	*Richmond, Virginia*	Preventive Dentistry
MILLER, Marilyn, DDS	*Princeton, New Jersey*	New Dental Technology
NASH, Ross, DDS	*Charlotte, North Carolina*	Esthetic Dentistry
NATIELLA, Jack, DDS	*Buffalo, New York*	Oral Pathology
NEWBRUN, Ernest, DMD, PhD	*San Francisco, California*	Preventive Dentistry
NIESSEN, Linda, DMD, MPH	*Dallas, Texas*	Geriatric Dentistry
PROFFIT, William, DDS	*Chapel Hill, North Carolina*	Orthodontics
SANDRICK, James, PhD	*Maywood, Illinois*	Dental Materials
TRUHE, Thomas, DDS, BSc	*Princeton, New Jersey*	New Dental Technology
WILSON, Richard, DDS	*Richmond, Virginia*	Periodontics

Toronto 1993 • April 28 – May 1

Toronto: Let's Go Shopping

Oh so easy (and fun) to do in Metropolitan Toronto. You want bargains? You want Boutiques? An abundance. Shopping centres? The best in the world. Toronto is truly a year-round shopper's paradise, offering – among a horn of plenty – everything for the pennypincher to the go-for-broker.

From Lakeshore to the city limits, Metro Toronto offers you the very best in shopping facilites. The **Eaton Centre**, both an architectural wonder and a shopper's dream come true is a must for any serious shopper. There are over 340 shops and restaurants within this multi-levelled complex, located on Yonge Street between Dundas and Queen. The Centre is anchored by the flagship location of Canada's two leading department store chains: Eaton's at the north end and Simpson's at the south.

In a class of its own is **Hazelton Lanes**, the "Rodeo Drive" of Toronto shopping centres, in **Bloor/Yorkville**. Very chic, this exclusive shopping zone features high fashion boutiques alongside elegant bistros and cafés. And, it's the ideal place to pick up anything in the $5 to 10,000 range! You'll enjoy a wander along the attractive laneways as you browse amidst shops featuring the best there is; or just dawdle along and drop into some of the area's excellent art galleries. This area, quite simply, ranks as the city's most prestigious shopping district – here you'll find the finest in clothing, shoes, leather goods, linens, home furnishings, crystal, china, antiques and more.

Eaton's Centre, Toronto, Ontario.
(Photo compliments of MTCVA)

At Harbourfront you will find the **Queen's Quay Terminal**, one of the city's most attractive and innovative shopping centres. This award-winning space (once the Toronto Terminal Warehouse, built in 1926) features more than 100 boutiques and shops. Among them is Tilley Endurables, whose mission is to 'make the best adventure and travel clothing in the world.' A leisurely stroll from one of the three convention hotels (Royal York, L'Hotel, and the SkyDome) will get you there. This area boasts some of the city's finest boutiques, services and entertainment. In addition, the Premier Dance Theatre is located within this area which lies on the picturesque shore of Lake Ontario.

For a diversion, across the street from the Queen's Quay Terminal, discover the **New Harbourfront Antique Market**. It's Canada's largest permanent market – 120 shops on two levels – and offers a treasure trove of antique furniture, china, jewellery, paintings and collectibles.

Next stop: Toronto's downtown underground city, bounded by Front, Dundas, York and Yonge streets. This incredible network – about half of which runs under Toronto's multi-billion-dollar financial district – has more than 1,000 retail stores and extends about 11 kilometres, making it the second-largest shopping centre in North America (after the West Edmonton Mall).

For the adventurous, a day on **Queen Street West** is like a day nowhere else. It's where Toronto's bohemians, artists and hipsters hang out. The eclectic flavor of the shops and restaurants between University Avenue and Bathurst Street sets it apart from any regular shopping area. From off-beat boutiques to cafés and clubs, Queen Street West is indeed a unique experience. So, if you're looking for all the 'happening' clubs, bars and cafés, this is the place to go.

Last but not least, let's not forget **Yonge Street** – Toronto's colourful "main drag". Near the Eaton Centre, check out the three jewellery exchanges, comprising more than 65 independent shops, they offer a great selection and low prices. Just up the street is HMV Canada – the country's largest music store, featuring more than 100,000 music titles and 10,000 video selections. Close by is the World's Biggest Book Store, just off Yonge Street, with 17 miles of bookshelves and more than a million books. And that's just the beginning: taking the TTC subway, you can get off at virtually any stop on the Yonge line and find fascinating shops, services and restaurants along the world's longest street.

Had enough yet? We sure hope not – the 'real thing' is far more exciting than just reading about it – plan to see for yourself this spring in Toronto while attending the 1993 CDA Annual Convention (hosted by the ODA): **April 28 - May 1.**

Meeting the Challenge of HIV and Hepatitis

Without a doubt, HIV and hepatitis B are two of the most serious contagious viruses to emerge in recent times. And while HIV has captured the spotlight in the '90s, hepatitis B poses a more widespread threat to dentists – despite the development of a vaccine and standard infection control procedures.

The Canadian Dental Association has always been committed to the health and safety of dentists, their staff and patients. By developing guidelines on infection control procedures, as well as publishing the latest information and research studies on health and safety issues, CDA helps dentists keep up to date on the challenges of the day.

As further evidence of this commitment, CDA and their council on insurance and investment, Canadian Dental Service Plans Inc. (CDSPI), are proud to announce insurance coverage for HIV and hepatitis B. This coverage is automatically applied to all new and existing Canadian Dentists Insurance Program (CDIP) long-term disability (LTD) policies – another valuable service for members of CDA and cosponsoring provincial dental associations.

Effective immediately at no extra charge — HIV and Hepatitis B coverage for our Long Term Disability plan participants

This new insurance coverage has been absorbed into the existing premium rates, and is therefore effective immediately at no extra charge. It comes into effect in the event that a CDIP LTD participant contracts HIV or Hepatitis B, and his or her practice becomes limited under guidelines approved by the dental profession or a government agency. Disability benefits will begin as soon as loss of income exceeds 15 per cent, even if no disability is yet apparent.

This marks one of the first initiatives into HIV insurance coverage related to income.

Sensible prevention and Protection

The patients visiting your dental office do not face a significant risk of infection from HIV or hepatitis B, because your office follows CDA's policies on infection control and safeguards your patients through universal precautions. As an active practising dentist, however, your risk of infection is greater. You could be infected from a needle-stick injury, for example, even though you stress prevention and protection, and conscientiously follow the latest research findings.

The incidence of infection in the general population is increasing, and it goes without question that opportunities for the transmission of infection to health care professionals are also increasing. The prudent dentist recognizes the need to protect both health and income. After doing everything that can be done for prevention's sake, he or she can now sit back and appreciate the extra peace of mind offered by CDIP LTD insurance and the HIV/Hepatitis B coverage it provides.

CDIP meets your changing needs

This new plan improvement highlights one of the advantages of CDIP's disability insurance policy – flexibility. Your plan is designed to accommodate your changing needs over the years. In addition, your policy reflects the changing times, and meets today's needs with the addition of HIV and hepatitis B coverage. You can be sure that in the years to come, CDIP will continue to tailor its insurance programs to meet the challenges of the day, particularly on issues of health and safety.

CDA and CDIP offer dentists an ongoing promise to meet the changing needs of the dental profession, and a commitment to leadership. ■

CDSPI
Metro Toronto: 296-9401
Toll Free:
1-800-561-9401 (service in English)
1-800-665-9401 (service in French)

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at August 31,1992	July 31, 1992
Bond & Mortgage Fund	101.04962	100.47502
Common Stock Fund	17.78793	17.90867
Money Market Fund	61.66609	61.41163
Balanced Fund	36.67551	36.75389

G.I.C. Fund Term	*Interest rates as at August 31, 1992	July 31, 1992
1yr	4.85%	5.10%
2yr	5.35%	5.60%
3yr	6.10%	6.35%
4yr	6.60%	6.85%
5yr	7.10%	7.35%

*(*rates subject to change without notice.)*

Total Assets (market value) of the Plan as of

August 31, 1992	July 31, 1992
$168,514,307.80	$167,886,954.10

For further information:

Write:

CDSPI
Retirement Services Dept.
Suite 710
100 Consilium Place
Scarborough, Ontario
M1H 3G8

or phone, toll free:

416-296-9401 Metro Toronto
1-800-561-9401 Service in English
Extensions:
252, 253, 254
1-800-665-9401 Service in French
1-416-296-8920 Fax.

The DAP Advisor

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

We got the T.E.A.M.: Building a Loyal Dental Team

When it comes to visiting a dental office, patients are creatures of habit: They like to see the same dental team members from visit to visit. Not only is it comforting for them to see the same faces, it also conveys the impression that yours is a well-run, stable practice that inspires staff loyalty. And from your patients' standpoint, a practice worthy of staff loyalty is also deserving of theirs.

It's not hard to build a practice in which staff members want to stick around for a while. All you have to do is consider their feelings, make them feel part of a larger team effort, and work together toward the same goal: to provide your patients with the best possible care.

Here are some techniques that you can use to build team loyalty:

• **Have regular staff meetings.** They will not only give you a chance to discuss office business, but also allow everyone an opportunity to touch base with each other and feel part of a team. Regular meetings can also help you and your team anticipate problems and head them off, either before they arise, or before they have a chance to become full-blown.

• **Meet with team members individually.** This will give you a chance to get to know each team member, and find out if the member has any concerns that would have been uncomfortable or inappropriate to raise in the group meeting. For example, one team member may have a conflict with or complaint about another member, and not want to talk about it in front of the group.

During the meeting, you can talk about the member's job performance and offer praise, if it's due, or discuss areas for improvement. The team member, in turn, can give you feedback on your practice, and bring up any concerns they may have.

• **Get together outside the office.** Have dinner sometime, or get together for a staff barbecue or picnic. When you get together like this, it gives your team a chance to get to know each other, and can build camaraderie that staff members will take back to the office.

• **Remember special days.** Give team members a card, or even a cake to celebrate their birthdays or the anniversaries of their joining your dental team. It's a nice way to tell team members that you value their work and makes them feel good about being part of your practice.

• **Encourage team members to keep learning.** Education doesn't necessarily stop just because a person has a certificate, diploma or degree. Support team members who want to upgrade their skills or learn more about their job by encouraging them to take courses and by helping to pay for them. Taking courses can benefit your entire staff, your practice, and your patients. When a member completes a course, display the certificate so that everyone knows how much you appreciate the person's efforts.

• **When a team member quits unexpectedly, find out why.** There's not much you can do if a staff member has quit because he or she is leaving town, or feels it's time to move on. But if the person is leaving because of dissatisfaction with you or your practice, then you should know about it. That way, you can address any shortcomings, should they exist, and take steps to ensure that other team members don't – and future employees won't – harbor the same unhappiness.

The Welcome Wagon

Inspiring loyalty in a dental team member can begin almost the moment after that person is hired. To make the new member feel as welcome as possible – and feel like part of your team before even starting to work – you might want to follow these steps:

1. Publish an announcement about the new member of your dental team in your local paper.

2. A few weeks before the new member starts, introduce the person to the rest of the dental team.

3. Have the receptionist tell patients she's recalling by phone about the new addition to your team, so patients know about it before they come for their visit.

4. Ask other team members to put out the word to patients they see in the office to expect to meet the new member on their next visit.

5. Post the new member's picture and a brief biographical sketch on your bulletin board or somewhere else in your reception area so patients can "get acquainted" with the person.

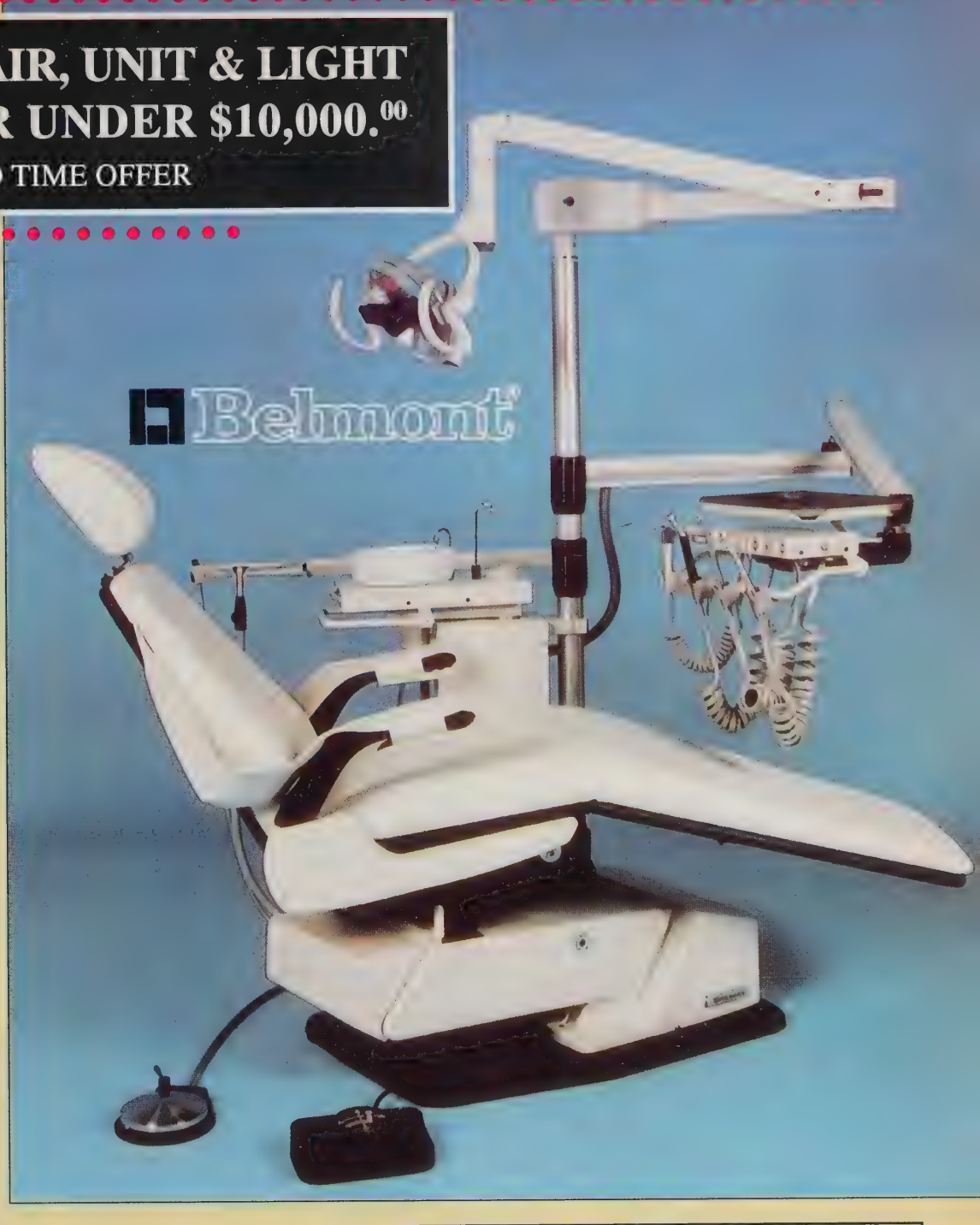
DENTAL HEALTH Good For Life

The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Back by popular demand. This DAP Advisor was first published in the September 1990 issue of the CDA Journal.

BELMONT CHAIR, UNIT & LIGHT PACKAGE FOR UNDER $10,000.00

LIMITED TIME OFFER



This package includes our top of the line ...

- Bel-7 chair with articulating head rest, foot control and arm slings.
- Pearl-301 Dental unit accommodates three automatic hand pieces.
- And our New 501-T touchless operating light.

The BEL/7 Chair functions in tandem with the Pearl over-the-patient delivery system.

Seamless upholstery is available to complement your aseptic control program.

The foot control provides "hands-free" chair operation to control cross-contamination.

The ultra-thin and narrow backrest places the patient in an efficient working position.

An articulating headrest, 60° rotation and snap-on upholstery is standard.

Swing-away arms for easy entry and vinyl slings for arm and shoulder comfort.

A 5 year warranty applies to all parts except upholstery on the BEL/7 Chair (refer to published warranty for specific details)

Touchless dental operating light features touchless infra-red sensor turns light on & off to reduce cross-contamination.

Three position intensity/switch.

Soft edges 3" X 7" light pattern.

The Pearl-301 Dental Unit is ideal for 2, 4 handed dentistry, seated or standing.

Non-retraction and handpiece flushing assist in maintaining an asepsis program.

The air-lock arm holds the delivery head in the desired working position

Optional at additional cost, a telescoping assistant arm on Model 301 places the HVE, and SE within easy reach of the assistant or the doctor.

Also from Belmont . . .

Feature packed operating stools available in a large selection of colors to compliment any decor.

CONTACT YOUR LOCAL BELMONT DISTRIBUTOR TODAY

OR CALL OUR TOLL FREE 800 NUMBER FOR MORE INFORMATION

TAKARA BELMONT

Visit us at the Winter clinic
Booth Nos. 223,225,227

2076 South Sheridan Way
Mississauga, Ontario L5J 2M4
Can. (416) 822-2755
1-800-268 5351

Who's Got the Patient? The Pitfalls of Working with Another Dentist

Gerald D. Chipeur, LLB, LLM

What do you do when:

1. You are on your way out the door of your office for a three-week vacation in the Virgin Islands and your popular young associate tells you he is leaving your office to establish a practice across the street; or

2. While golfing with your employer, she tells you that your services as a dentist in her office are no longer required; or

3. You have just administered local anesthetic to a patient and your partner hands you a notice of dissolution as per the partnership agreement between the two of you?

The answers to these questions should be obvious:

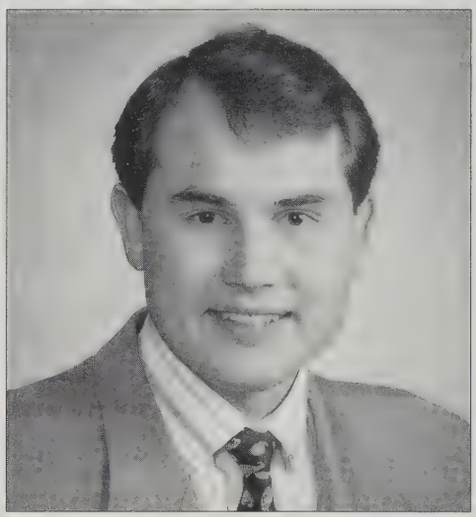
1. Arrive at the airport at least 90 minutes before your flight as you have an international destination;

2. Keep your eye on the ball and follow through on your swing; and

3. Wait for the anesthetic to take effect before commencing the procedure.

For many dentists, however, the answers are not so obvious, or simple. During the past few years, a surprising number of dentists have paid large fees to lawyers for the privilege of asking a judge to answer questions such as these. However, even before the lawsuits fly, the most common response of dentists to the dissolution of professional working relationships is to grab the patient records before the other dentist does. In fact, it is because of this "possessiveness" with respect to patient records that disputes involving the dissolution of dental practice groups often end up in court.

This article will review recent Canadian court decisions on the ownership of patient records and will identify the legal principles which determine who will walk away with the charts when dentists no longer practise together.



Gerald D. Chipeur

Who Owns the Chart?

In discussing patient records, it is first important to clarify the relationship between the patient and the dentist. No one would make the argument that a dentist or other health care professional "owns" a patient. However, it is generally accepted that a health care professional may own a patient's record.[1] In the past, patients have had very limited, if any, right of access to their own health information. The current trend, however, is to allow patients complete access to the information on their charts or health care files.

Recently, the Supreme Court of Canada put the force of the common law behind the access movement in the case of *McInerney v. MacDonald*.[2] This case involved a patient's application for access to the medical charts maintained by a physician, Dr. McInerney, together with all the consultants' reports and records of other physicians that were a) related to the patient; and, b) in the possession of Dr. McInerney. The Supreme Court concluded that patients must generally have access to all information on their charts. It noted that we live in a mobile society with a growing need to be fully informed about our health care. Access to information is essential if a patient is to make an informed decision when choosing a health care provider or determining the appropriate form of treatment. It is also important to the relationship of trust between caregiver and patient. It is on this principle that the court grounded its decision. A doctor is under a fiduciary duty to provide access to a patient's own records. The doctor only holds the information for the "beneficial interest" of the patient.3

While it is clear that the dentist owns the dental charts, it is not always clear which dentist owns a particular patient chart, particularly in a multi-dentist practice. Under the common law, and in the absence of an agreement to the contrary, the owner of the dental practice owns the patient records. It is critical, therefore, to determine who owns the practice. To answer this question in the context of a given practice situation, it will be necessary to analyze the relationship between the dentists in the group. Is it one of partnership, employment or independent contract? In a partnership, the agreement between the partners governs the ownership of records. Usually, patient charts are a partnership asset. If an employment relationship exists, patient charts will belong to the employer unless the employment contract provides otherwise. If the dentists are independent contractors, then they will each own the charts of their respective patients.

Determining whether or not a partnership exists isn't difficult. In fact, most litigation involving dental partnerships does not concern this question. More often than not, partnership disputes centre around whether a particular asset belongs to the partnership or to an individual dentist, and on how and when the partnership should be dissolved. These questions will be addressed later in this article. A more difficult question for the courts to answer relates to the distinction between contracts of service (employment agree-

ments) and contracts for services (independent contracts).

Employee or Independent Contractor?

The difference between independent contractors and employees was explained in the judgment of Justice Saunders of the Ontario High Court of Justice in *Bacher v. Obar*.[4]

Both Dr. Bacher and Dr. Obar were dentists. They had worked together for 4 1/2 years without a written agreement in place. Dr. Bacher's management corporation managed the practices of both dentists. Dr. Obar paid 45 per cent of the first $100,000 of his gross billings and 40 per cent of any gross billings in excess of that amount to the management corporation. After the two dentists had worked together for some time, Dr. Bacher presented Dr. Obar with a partnership proposal. After discussing it with his advisers, Dr. Obar decided that he would be better off on his own. Without telling Dr. Bacher, Dr. Obar leased new premises across the street and started copying his patients' charts. When Dr. Bacher discovered this, he asked Dr. Obar to leave. Dr. Obar did so and opened his new office across the street a few days later. He then sent out announcement cards to his patients and telephoned some patients who had appointments with him at his old office. Dr. Bacher responded by keeping Dr. Obar's name on the sign outside his office for nearly a year after Dr. Obar had left, and misinformed some patients about Dr. Obar's new location.

The relationship between the dentists for most of their 4 1/2 years together was "to the mutual advantage of each of them and to the advantage of the community as a whole."[5] It was only toward the end of this period that acrimony developed. In the words of the judge, the relationship "had evolved to the point where the time was ripe, if not over ripe, for it to change or terminate."[6]

Unfortunately, the close relationship between the dentists did not survive the termination of their practice together. Under the stress of the breakup of their business relationship, the conduct of both protagonists was "less than admirable."[7] The relationship eventually deteriorated to the point where litigation was initiated. Dr. Bacher sued Dr. Obar for operating a dental practice within a one-mile radius of Dr. Bacher's office, for misusing patient records and for soliciting Dr. Bacher's patients. Dr. Obar counterclaimed for damages flowing from his termination and Dr. Bacher's subsequent actions.

Justice Saunders first had to determine who owned the patient charts or records. There was no written contract between the dentists. Dr. Obar would own them if he was an independent contractor, while Dr. Bacher would own them if an employment relationship existed. In his judgment, Justice Saunders identified factors consistent with the existence of either conclusion. However, he thought that the issue was conclusively determined by the financial arrangements between the parties. For income tax purposes, Dr. Obar was not treated as an employee of Dr. Bacher, but as a cost sharer through a contractual relationship with Dr. Bacher's management corporation. There was no direct contractual relationship between the dentists – Dr. Obar paid the management corporation, not Dr. Bacher, a percentage of his fees. Because the management corporation could not practise dentistry, it could not employ Dr. Obar as a dentist. Justice Saunders concluded that it indeed did not do so and gave this note of warning to dentists:

"The use of management corporations by dentists and other professionals is well-established. The purpose of their creation is the reduction of tax payable personally by the professionals. Over the years, recognized guidelines have developed between the professionals and the revenue authority. Taxpayers may arrange their affairs in such a way as to minimize the effect of taxation. If they do so, they must accept the legal consequences of what they have done."[8]

Notwithstanding that the dentists were independent contractors, and that there was no written contract, Justice Saunders held that they nonetheless "had a duty to act reasonably toward the other in conducting their affairs."[9] He concluded that neither dentist had completely lived up to that duty. Accordingly, he awarded damages against Dr. Obar for the loss suffered by Dr. Bacher's management corporation when Dr. Obar quit without reasonable notice. Those damages were set at six weeks net revenues of the management corporation.

Damages were also awarded against Dr. Bacher for the loss of business suffered by Dr. Obar when Dr. Bacher misled members of the public as to the existence or location of Dr. Obar's practice. The value of the loss was set at $4,600. Dr. Bacher was also ordered to pay $680 for failing to comply with Dr. Obar's request for X-rays on a timely basis. In the end, the claims largely offset each other.

Fiduciary Relationship?

Even when there are written agreements in place, things can go wrong. Such was the case in *Kronick v. Lamarche*.[10] In 1984, Dr. Kronick sold his dental practice to Dr. Lamarche. At the time, he was thinking of retiring, but agreed to stay on with Dr. Lamarche as an associate for one year. The sale agreement included a clause prohibiting Dr. Kronick from practising dentistry within five miles of his former practice for a period of three years.

Dr. Kronick eventually stayed on with Dr. Lamarche until June 1987, a little more than three years after the sale. In June 1987, Dr. Kronick set up a practice in competition with Dr. Lamarche – within the five-mile radius prohibited by the sale agreement – and notified his patients of the move. As the three-year limitation had expired, Dr. Lamarche could not maintain an action for breach of the restrictive covenant.

Dr. Lamarche did have another potential claim against Dr. Kronick that required adjudication. She alleged that Dr. Kronick had misused or stolen confidential patient information or had breached his fiduciary duty to her by notifying his patients of his move. However, the court rejected this claim on the basis that no fiduciary duty existed and that there was no property in a patient.[11] On this issue, the court quoted with approval from the Ontario High Court of Justice decision in *Goodman v. Newman*: "Professionals, such as doctors, dentists and lawyers do not have the same proprietary right to their patients or clients as does a corporation to its customers. Professionals provide a personal service and establish a personal relationship with their clients, regardless of where or how the client or patient arrived at the firm or practice. The client or patient ought not to be 'handcuffed' to the business."[12]

In *Goodman v. Newman*, Dr. Goodman had employed Dr. Newman for some 10 years as a dentist in his practice. Over a period of several years, the possibility of partnership was discussed. In the final analysis, no partnership was agreed on, and Dr. Newman left Dr. Goodman's practice. When Dr. Newman left, he took with him a list of 600 patients whom he had personally served. Dr. Goodman asked the Ontario

High Court of Justice for an injunction to prevent Dr. Newman from using this list on the basis that the information it contained was confidential and belonged to the practice. The court disagreed. It held that the patient list did not constitute confidential information and dismissed the injunction application.

Dissolving Partnerships

Two recent decisions of the Ontario Court of Justice illustrate that partnership agreements are also prone to conflict, particularly at the time of dissolution. In *Kamin v. Kellen,*[13] the issue was whether the partnership agreement allowed departing partners to both demand payment for their "goodwill" in the partnership and take patient records or charts with them when they left. The court said no. The partnership agreement was ambiguous, but, based on testimony from the parties, the judge concluded that a former partner could not have his cake and eat it too.

In *Kucher v. Moore*, Dr. Kucher had a different problem. Dr. Moore, his partner of 13 years, was found guilty by the licensing body of overcharging and poor record keeping and was suspended for nine months. In addition to the suspension, Dr. Moore was away from the practice for medical reasons and received disability insurance for an extended period of time. Because of these problems, Dr. Kucher tried to negotiate a dissolution of the partnership in 1986. The two dentists did not conclude an agreement concerning the termination of the partnership and litigation eventually ensued. The trial addressed two key questions. Firstly, did the partnership terminate in 1986? Secondly, was the property housing the dental practice a partnership asset? Both questions were important, because the property had increased in value from $446,125 in 1986 to $1,180,000 in 1990. If the partnership did not terminate, or if the dentists owned the property outside of the partnership, then Dr. Kucher would owe Dr. Moore half of $1,180,000, as opposed to half of $446,125.

The Ontario Court of Justice first determined that the property was a partnership asset and then proceeded to ascertain whether the partnership had been dissolved in 1986. The court accepted Dr. Moore's testimony that he had never agreed to the termination of the partnership in 1986. The Court nonetheless held that the partnership ended in 1986. Because of misconduct on the part of Dr. Moore, the court concluded that it would be just and equitable to have the partnership dissolved as of 1986. Dr. Moore's misconduct involved a ploy on his part to deceive Dr. Kucher with respect to the amount of money he was receiving from the disability insurance company. Dr. Moore surreptitiously obtained some letterhead from the insurance company and hired an independent typist to make up a letter indicating that the disability insurance payments had been $19,000 rather than the actual amount paid, which was five times as much. Dr. Moore had the typist sign the letter as an employee of the insurance company, and the letter was then given to Dr. Kucher. The court found that this deceit entitled Dr. Kucher to treat the partnership as being at an end.

Restrictive Covenants

A well-structured written agreement that includes restrictive covenants, where appropriate, should be in place before a group of two or more dentists commence working together. This is particularly important for senior dentists with established practices. In the absence of an agreement governing such issues as ownership of patient records and noncompetition, the common law – in effect, if not by design – favors the junior dentist. The law places little restriction on the use of patient records or on competition where the dentists concerned are independent contractors. Even where an employment relationship exists, the senior practitioner is not fully protected. While the junior dentist cannot take patient records when he or she leaves the practice, there is no restriction against setting up a new practice next door and advising patients of the move.

Established practitioners should ensure that the appropriate restrictive covenants are in place when they start to practice with other dentists, regardless of whether the relationship is one of partnership, employment or independent contract. Restrictive covenants can be placed in partnership agreements, employment agreements and independent contracts. In addition, depending on the circumstances, established dentists may also secure protection by negotiating restrictive covenants in unanimous shareholder agreements and shopping centre leases.

Act Reasonably

In the endeavor to protect oneself from unfair competition, a dentist should not lose sight of the reason why restrictive covenants are needed in the first place — to enhance the value of a practice. There may be times when the close proximity of other dentists helps rather than hinders a practice.

The case of *Gray v. J.N.S. Developments Ltd.*[14] illustrates the folly of enforcing a restrictive covenant while wearing "blinders." Since 1987, Dr. Gray had practised dentistry in a shopping centre operated by J.N.S. Developments. The lease provided that J.N.S. Developments would not lease other premises in the shopping centre for the use of another dentist. J.N.S. Developments developed a second phase to the shopping centre in 1988, and in 1990 agreed to lease an area in the second phase to a dental surgeon by the name of Dr. Stranks. When Dr. Gray learned of the agreement, he commenced legal action and asked the Ontario High Court of Justice to issue an injunction preventing Dr. Stranks from moving into the shopping centre, pending trial.

The court could not think of any damage that Dr. Gray would suffer if Dr. Stranks' was located in the same shopping centre. In fact, the evidence suggested that Dr. Gray would actually benefit from such a presence. The court noted that the practices of the two dentists were very different in nature. Dr. Gray relied heavily on a walk-in practice. Dr. Stranks, on the other hand, was a specialist with very few walk-in patients. Almost all of Dr. Stranks' practice was by way of referral. The evidence even disclosed that Dr. Gray referred patients to Dr. Stranks.

Notwithstanding the differences between their practices and the fact that Dr. Gray admitted in cross examination that he was unable to indicate what damages he would suffer if Dr. Stranks were to move into the shopping centre, Dr. Gray insisted on enforcing the restrictive covenant. Dr. Gray even rejected an offer by Dr. Stranks "to keep accurate records of all patients as to where they have been referred from and not to take any walk-in patients, but to refer them all to Dr. Gray."[15]

After reviewing the legal principles governing the granting of an injunction, the Ontario High Court of Justice refused to enjoin Dr. Stranks from opening his practice in the same shopping centre as Dr. Gray's. The main reason for refusing to grant such an injunction was the court's belief that Dr. Gray would not suffer irreparable damage, an essential precondition to an injunction. In fact, the court thought that the presence of Dr. Stranks' practice would attract more

people to the shopping centre who would seek dental services from Dr. Gray.

Conclusion

If care is taken to have a written agreement in place before dentists start practising together, the legal answers to the questions posed at the beginning of this article will not be hard to discern. A well-drafted partnership, employment or independent contract will anticipate potential controversies and provide explicit answers so that the parties will not need to ask the courts for help down the road. Dentists in group practice should insist on a written agreement, tailored to their specific situation, which covers the potential problems identified in this article. ■

G.D. Chipeur *is a partner with Milner Fenerty Barristers and Solicitors in Edmonton, Alberta.*

References

1. *McInerney v. MacDonald*, [1992] S.P.C.J. No. 57; Lamothe v. Mokleby, 106 D.L.R. 3rd 233 (Sask. Q.B. 1979).
2. *McInerney v. MacDonald,* [1992] S.P.C.J. No. 57.
3. *McInerney v. MacDonald*, [1992] S.P.C.J. No. 57.
4. 28 C.C.E.L. 160 (Ont. H.C. 1989).
5. 28 C.C.E.L. at 174.
6. 28 C.C.E.L. at 174.
7. 28 C.C.E.L. at 476.
8. 28 C.C.E.L. at 171. (Justice Saunders did not follow the approach of the Newfoundland District Court in *Peters v. Palmer*, 156 A.P.R. 15# (1985), where the court found a similar arrangement to be one of convenience, a device for personal tax advantage only, and not to be a weighty or influential factor.)
9. 28 C.C.E.L. at 174.
10. Action No. 312341/88 (Ont. Gen. Div. May 21, 1991).
11. This conclusion is at odds with the decision of the British Columbia County Court in Anderson v. Nelford, Van. Reg. No. F880240 (B.C. Co. Ct. Nov. 17, 1989) where the relationship between a law firm and an associate lawyer was held to be fiduciary in nature. However, notwithstanding this conclusion, the County Court held that the associate lawyer had the right and duty to advise his clients when he left the firm and let them know that they had a choice to stay with the firm or go with him. The court noted that "there is a way of taking a business advantage which breaches one's fiduciary duty, and a way which does not."
12. 13 C.P.R. 3d 48, 52 (Ont. H.C. 1986), aff'd. C.A. No. 695/86 (Mar. 25, 1988).
13. Action No. 35831/89 (Ont. Gen. Div. Apr. 17, 1991).
14. Action No. 45534/90 (Ont. H.C. Mar. 12, 1990).
15. Action No. 45534/90 (Ont. H.C. Mar. 12, 1990).

— The Yankee Dental Congress —

MARDI·GRAS

WEEKEND IN BOSTON

DAZZLING ENTERTAINMENT

Cajun Zydeco
by the Boogaloo Swamis

Jazz Cabaret With
MEL TORME & HELEN REDDY

Special Appearances:
Julia Child, "The French Chef"
Rabbi Harold Kushner

Spectrum of Speakers

Gordon Christensen • William Becker
Gerald Bowers • Sebastion Ciancio
Israel Finger • Frank Spear
Linda Miles • Robert Rosenberg
Robert Pritikin

Bigger & Better

Live T.V. Demonstrations
Expert Panels • Hands-on Courses
New Computer Shoot-Out

KALEIDOSCOPE OF KNOWLEDGE
YANKEE DENTAL CONGRESS
JANUARY 21 - 24, 1993

For More Information:
Dr. Robert Kittredge, General Chairman
Yankee Dental Congress
Massachusetts Dental Society
83 Speen Street, Natick, MA 01760-4125
(508) 651-7511

Dental Injuries at the 1989 Canada Games: An Epidemiological Study

C. Todd Lee-Knight, DMD, BSPE
Elizabeth L. Harrison, M.Sc., BPT
Connie J. Price, M.Sc., B.Sc.PT., BSPE
Saskatoon, Sask.

ABSTRACT

The management and prevention of dental trauma is an integral part of the medical services provided at major athletic events. This paper reviews the organization and delivery of the dental services provided at the 1989 Canada Games. The nature, incidence and management of the dental problems reported in the participant population of 3,411 athletes are also described.

During the two-week competition, 15 participants were assessed and treated for various dental conditions, including hard- and soft-tissue injury of the oral cavity, and temporomandibular joint sprain. The sports with the highest incidence of dental injury for the male population were wrestling (one per cent) and basketball (0.8 per cent). For the female population, these sports were basketball (2.5 per cent) and field hockey (1.3 per cent).

The dental services provided during the games included emergency assessment and treatment, fabrication of mouthguards, and in-service education to medical team members.

SOMMAIRE

La gestion et la prévention des traumatismes bucco-dentaires font intégralement partie des services médicaux offerts lors des grandes compétitions sportives. Dans cet article, on passe en revue l'organisation et la prestation des soins dentaires aux Jeux du Canada de 1989. On y décrit également la nature, l'incidence et la gestion des problèmes signalés chez les 3,411 athlètes qui ont participé à ces jeux.

Durant les deux semaines qu'ont duré les jeux, quatorze participants ont été examinés et traités pour diverses affections bucco-dentaires, y compris des lésions aux tissus durs et mous de la bouche et des problèmes à l'articulation temporo-mandibulaire. Les sports ayant causé le plus de lésions bucco-dentaires ont été, chez les hommes, la lutte (1.0 p. cent) et le basket-ball (0.8 p. cent), et chez les femmes, le basket-ball (2.5 p. cent) et le hockey sur gazon (1.3 p. cent).

Les services dentaires offerts durant les jeux ont compris des examens et des traitements d'urgence, la fabrication de protecteurs buccaux et des cours donnés à des membres de l'équipe médicale durant les heures de service.

Introduction

The Canada Games, a national competition aimed at developing young athletes and coaches for future Olympic or national teams, is a multi-sport event that involves teams from each of Canada's 10 provinces and two territories. This event is held over a two-week period, once every four years, in a selected Canadian city. The 1989 Canada Games, held in Saskatoon, Saskatchewan, featured 19 sports and involved over 3,000 athletes, coaches and managers. An event of this magnitude requires a multidisciplinary medical team to manage the participants' various injuries and health-related problems. Dental services aimed at the prevention and management of dental trauma or emergencies are an essential component of the medical services provided at major athletic competitions.

This study reviews the organization and delivery of the dental services provided during the 1989 Canada Games, reports on the incidence of dental trauma, and makes recommendations regarding the provision of dental services and the prevention of dental injuries at future major athletic competitions.

Davis and Knott[1] reported that children between 6 and 12 years of age comprise the population group at greatest risk of sustaining dental injuries as a result of sporting activities. In this survey, one third of the dental injuries occurred in contact sports. This led the authors to conclude that most dental injuries (66 per cent) arose from non-contact events. Other studies[2,3] investigating contact sports injuries have estimated that the risk of sustaining oral injury during a competitive season is 10 per cent, whereas the risk of such an injury occurring over an entire athletic career ranges from 33 to 56 per cent.[4,5] W.C. Godwin, the director of sports dentistry at the University of Michigan Dental School, has defined a contact sport as any sport in which an object can strike the jaw or teeth.[6] I.L. Kerr, the chairman of the committee on dental health for the United States Olympic committee, has suggested expanding this definition to include any activity that places stress in the oral region, resulting in intense clenching of the teeth.[6]

Although no studies on the oral injuries that occur during major games were revealed in a review of the literature, a few studies have compared the injuries that occur in different sports over a competitive season. One such study,[7] initiated in 1984 by dentists involved in mouth protector programs at the University of Texas Health Science Center in San Antonio, surveyed high school athletes participating in basketball, softball, volleyball, and soccer. Data were compiled on 35,465 women. This survey reported injury rates in basketball of 1.92 per cent and in soccer of 2.89 per cent. Morrow and Bonci[8] surveyed over 21,500 female college and university athletes in the United States, and reported oral injury rates of: 7.48 per cent in basketball, 3.11 per cent in soccer, 1.59 per cent in volleyball, and 1.55 per cent in softball. In addition, it was found that the oral injury rate for field hockey was 2.82 per cent, and 2.27 per cent for lacrosse, despite a compulsory mouthguard rule for these two sports. The authors of these studies recommended that a mouth protector should be worn while participating in sports activities.[8,9]

Get 30% more car and 100% fewer headaches with the CDA Leasing Program!

Getting a new car today can be a real hassle. Travelling from car lot to car lot, zealous salespeople — it can all add up to an unpleasant and time-consuming experience.

Unless you do what more and more of your colleagues are doing. Just call CDA Leasing and let them do the shopping for you. They can get any vehicle you want, North American or import. And, their fleet purchasing power, combined with the advantages of leasing, means you can drive the vehicle you want for about 30% less per month than if you financed through your bank. Keep the difference in your pocket, direct it towards other worthwhile investments, or get the next model up, with all the goodies, for the same budgeted payment!

CDA Leasing will handle the whole transaction, from helping to identify the make, model, and options that best suits you, to localized purchase and delivery of your new car. They can even help you dispose of your existing vehicle. CDA Leasing documents are simple and straightforward, with terms that can be tailored to exactly meet your needs. And, you can drive all you want.
No kilometer restrictions! A guaranteed purchase option on every lease!

Make obtaining your next new vehicle headache-free and save money too — call CDA Leasing at 1-800-461-2923 today! They'll be happy to explain why dental professionals across Canada are turning to CDA Leasing.

CDA Leasing / Location ADC
7100 Woodbine Ave., Suite 400, Markham, Ont. L3R 5J2
Telephone: (416) 477-8377, Toll-Free 1-800-461-2923

Organization of Dental Services

The dental service division of the 1989 Canada Games' medical committee was formed 18 months prior to the event. An appointed dental coordinator recruited three general dental practitioners, one oral and maxillofacial surgeon, one orthodontist and one certified dental lab technician. One year prior to the Games, each provincial team was informed that dental services would be available at the event, and that all participants should bring their own mouthguards.

Nothing beyond a participant-generated medical history was mandatory for this competition, which meant that the majority of athletes did not undergo medical screening prior to the Games. A dental history was obtained at the time of injury.

From August 13 to August 26, dental practitioners were on call or on site during competitions, particularly at basketball, soccer, softball, baseball, field hockey and wrestling venues. These sports were considered as high risk for dental-related injuries. In addition to the general medical orientation sessions conducted prior to the Games, two in-services on dental injuries were presented to the health professionals working at the main medical clinic and venues.

Facilities and Delivery of Dental Care

Dental facilities were provided at the Games' central medical clinic, as well as in two private practice offices, the dental lab at the University of Saskatchewan, and the dental department of University Hospital in Saskatoon. Injured athletes were initially assessed at the central medical clinic or the medical facility at the actual sports venue, then transported to one of the other facilities if medical personnel determined that further assessment or treatment was required. Referral was made to a dental practitioner for any injury to the stomatognathic system or if the condition of the dentition was affected. Emergency dental treatment, including a mouthguard service, was provided free of charge to the athletes. All equipment and supplies were donated by the volunteer dentists. Mouthguards were fabricated and provided by the dental technician within one hour of receiving the necessary impressions. The estimated cost of the dental services provided to the athletes during the Games was $1,184.13, based on the College of Dental Surgeons of Saskatchewan's suggested fee guide.

Data Collection

Medical records were created for every athlete prior to the Games. Basic injury forms were also completed on each athlete treated at the main clinic or one of the venue clinics. These forms were filed on a daily basis. A computerized data collection system, based on a relational database, was used to store and analyze data related to the assessment and treatment of all the injuries and illnesses encountered during the games. In addition, a detailed dental record was kept for each participant seen by the dental personnel.

Results

Table I categorizes the 3,411 athletes (aged 14-21 years) who participated in the Games, as well as their coaches and managers, by sport and gender. A total of 132 participants were assessed at the main medical clinic and/or one of the venue clinics, and then treated by appropriate medical personnel for injuries or conditions of the head and orofacial regions. These injuries included abrasions, contusions, concussions, general trauma, lacerations and/or fractures. Fifteen participants presented with injury to the stomatognathic system or conditions of the dentition, and were referred for dental assessment and treatment.

Prior to the Games, it was estimated that dental services would be provided for eight to 10 individuals. By the end of the competition, dentists had treated nine athletes and six coaches or officials. **Table II** describes the incidence of the oral injuries occurring at the Games, and categorizes them by sport and gender. The sport with the highest incidence of injury for females, as well as for both genders combined, was basketball at 1.7 per cent. Female and male basketball players exhibited injury rates of 2.5 per cent and 0.8 per cent respectively. The highest incidence of dental injury for a male sport, one per cent, occurred in wrestling. The injuries sustained by these athletes included lip lacerations, chipped and broken teeth, traumatized teeth, and a sprained temporomandibular joint. Six coaches and officials were treated for dental conditions unrelated to athletic competition (**Table III**).

TABLE I

Number of Participants Involved in Each Sport (N = 3,411)

Sport	Number of Athletes		Number of Coaches/Managers	
	Male	Female	Male	Female
Archery	35	34	9	9
Baseball	179	NP	30	0
Basketball	120	120	41	19
Canoeing	77	45	16	10
Cycling	50	38	10	10
Diving	25	27	9	9
Field Hockey	NP	150	2	18
Rowing	109	117	22	14
Sailing	40	39	10	10
Soccer	170	NP	19	1
Softball	180	165	49	20
Swimming	114	119	26	15
Tennis	40	38	10	10
Track and Field	266	194	51	17
Volleyball	132	131	43	23
Wrestling	101	NP	24	0
Totals	1,638	1,217	371	185

Why Get "Drilled" For $30,000 Up Front, And Hundreds Of Dollars In Monthly Maintenance Fees?

Introducing PractMan, the answer to your practice management needs, at less than half the price of other systems.

PractMan offers total practice management — including complete accounting — in a real-time, fully integrated system.

PractMan Includes...
Free Support!
No Monthly Maintenance Fees!
Free Seminars!

Practice Management

- Complete Patient Records
- Insurance Carrier Records
- CDA & MSI Insurance Forms
- Patient Receipts & Statements
- Progress Notes
- Laboratory Maintenance
- EDI Transfers
- Automatic Recalls
- Family Member Information
- Built-in ODA Fee Schedule
- Dental and Medical Histories
- Referral Tracking
- Appointments

Accounting

- General Ledger
- Accounts Receivable
- Accounts Payable
- Payroll
- Banking
- Financial Statements
- Budgeting & Financial Planning
- Complete GST
- and much more!

SEE US AT :
The Toronto Academy of Dentistry
WINTER CLINIC
Thursday, November 26, 1992
Metro Toronto Convention Centre

Current Users Say...

"I'm glad I chose PractMan, because now I am getting reports and information about my practice that I never got before."

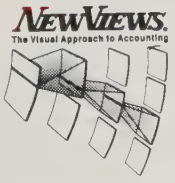
Dr. Francois Bessay, D.D.S., Uxbridge, ON

"Finally, I've found a dental system that is simple, comprehensive, yet flexible enough to handle my individual needs."

Dr. Ronald Chafe, D.D.S., Sydney, NS

Because PractMan is based on NewViews, a leading Canadian accounting software package, you get everything you need to computerize your practice. There are no separate modules to buy!

NEWVIEWS. The Visual Approach to Accounting



TB1 INC.

Call 1-800-567-2800 for more information!

In Toronto call 416-503-1800

TB1 Inc., 433 Horner Avenue, Unit 4, Toronto, ON, M8W 4Y4

TABLE II

Incidence of Injuries by Sport and Gender

Sport	Male		Female		Combined Male/Female	
	No. Athletes	No. (%) Injuries	No. Athletes	No. (%) Injuries	No.	No. (%) Injuries
Basketball	120	1 (0.8%)	120	3 (2.5%)	240	4 (1.7%)
Field hockey	NP	—	150	2 (1.3%)	—	—
Soccer	170	1 (0.6%)	NP	—	—	—
Softball	180	1 (0.6%)	165	0 (0%)	345	1 (0.3%)
Wrestling	101	1 (1.0%)	NP			
Totals	571	4	435	5	—	—

NP denotes no participants

The majority of the assessed dental injuries involved lip lacerations, traumatized teeth, and chipped or broken teeth, as indicated in **Table III**. Any injury to the dentition was assessed radiographically to rule out subgingival fractures, observed for mobility and percussion sensitivity, and then monitored for any change in status. Chipped and fractured teeth were immediately restored with composite resin. One field hockey player sustained a sprained temporomandibular joint. A panogram was taken to rule out condylar neck fractures, and the athlete was monitored for the remainder of the week while on analgesics and a therapy program. The most serious dental injury involved a male basketball player who suffered a midroot fracture of a maxillary central incisor. The tooth was repositioned, splinted with an orthodontic wire and acrylic, then monitored for the remainder of the competition to determine whether there would be a need to initiate endodontic therapy. The tooth remained asymptomatic, and the pertinent records were forwarded to the athlete's dentist following the Games.

Discussion

It must be emphasized that competition during these games was limited to a maximum of seven days, which makes it difficult to compare this study to those conducted over entire competitive seasons. It is important to note that none of the athletes who sustained dental injuries at these Games wore a mouthguard. Their injuries may have been of reduced severity, or indeed prevented, if mouthguards had been worn. Four of the nine athletes who sustained dental injuries subsequently asked dental personnel to provide them with custom-fitted mouthguards. In addition, the athlete with the splinted mid-root fracture was fitted with a mouth-formed protector to minimize the risk of soft-tissue injury. None of the conditions assessed in the coaches and officials were directly attributable to involvement in a sport, although it could be argued that a case of traumatic occlu-

TABLE III

Classification of Dental Injuries and Conditions

Injury/condition description	Injuries/conditions No.	Percentage of total dental injuries/conditions
Category I (athletes)		
Tooth infraction	4	15.4%
Chipped tooth	6	23.1%
Fractured root	1	3.8%
Lacerated lip	3	11.5%
Traumatized TMJ	1	3.8%
Total	15	
Category II (coaches and officials)		
Dental abscess	3	11.5%
Pericoronitis	1	3.8%
Traumatic occlusion	1	3.8%
Defective provisional restoration	1	3.8%
Total	6	
Category III (mouthguard fabrication)		
Custom mouthguard	4	15.4%
Mouth-formed mouthguard	1	3.8%
Total	5	

Overall Total 26

INTERPLAK UPDATE

A publication for the Canadian Dental Community

BAUSCH & LOMB

Fall 1992

INSIDE:

DAPper Dentists?.....2
Profile.....2
What's new?.....3
Editorial.....4
Environmental Update.....4

Why a newsletter from Bausch & Lomb?

As you know, five years ago Bausch & Lomb was best known as a supplier of top quality ophthalmic products. Following the acquisition of the Interplak device, our focus changed. We have now become a service oriented, innovative dental supplier. We have worked with both the C.D.A, and various regional associations to educate the public about the dangers of plaque. We have a national direct sales force dedicated solely to servicing the dental office. We also provide informative patient brochures, and we have even instituted a Dispenser Appreciation Program, to thank the dental community for their support.

This newsletter is the next step. It's purpose is to further the dialogue we have established with the Canadian dental community. It's goal is to inform and entertain you, while keeping you updated on new oral care developments from Bausch & Lomb. We can't have a dialogue without your feedback. So tell us what you think about the Interplak Update.

Contact your Bausch & Lomb representative, or call the editor at 1-800-668-7510, ext. 284 with your comments. We're looking forward to hearing from you. □

Dawn Laverdure

Dawn Laverdure - Division Director, Oral Care Division

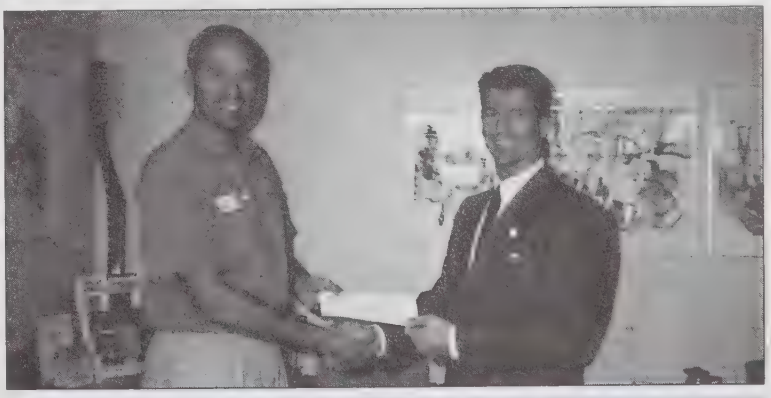
Dental Pentathlon takes the Gold

The dental pentathlon was a joint promotion, run in conjunction with the C.D.A. The purpose of the program was to educate the public about the importance of removing plaque. Phase one involved the placement of informative brochures in dental office waiting rooms. Support for this part of the program was phenomenal. Over 3,000 kits were requested by dental professionals across Canada. Offices that ordered kits were automatically entered into a contest. The grand prize winners were Dr. Ernie Slubick, DDS of Red Deer Alberta, and Deloris Wood, RDH, of Willowdale, Ontario. They both spent a week in Albertville France, attending the Winter Olympics, compliments of Bausch & Lomb.

The Dental Pentathlon kits contained brochures highlighting the C.D.A.'s five point prevention program. Patients learned; not to rush their brush, to clean between teeth, to eat a balanced diet, to check their gums regularly for signs of gum disease, and to visit their dentist regularly.

In order to ensure that patients remembered what they had learned about plaque, they were asked to answer questions about what they had just read. Answering the questions automatically entered patients in a draw for a trip to the Olympics. Again the response was substantial. Over 5,000 patients completed the questionnaire.

The grand prize winner was Timothy Weekes, of Port Perry, Ontario. He spent 5 days and four nights in Barcelona Spain, attending the summer Olympics. We'd like to thank all those offices that helped make the dental pentathlon a success. Bausch & Lomb feels that patients benefit when we work together. We hope to be able to continue to working with you in the future. □



Dr. Ernie Slubick (left), One of three Dental Pentathlon grand prize winners pictured with Bausch & Lomb representative Doug Sisson.

Number of DAPper Dentists Increasing

Dental professionals switching to trendy fur lined gloves? Plunging necklines sweeping into operatories this fall? Hygienists choosing fashionable pearl necklaces that match their surgical masks? No. This article isn't about a fashion trend sweeping through the Canadian Dental Community. The headline refers to the increasing number of participants in the Interplak Dispenser Appreciation Program.

What is DAP? It's our way of thanking you for helping to make Interplak the number one oral care appliance in Canada. DAP works exactly like a frequent flyer program. Every time you dispense an Interplak product to one of your patients you earn points. Points that can be exchanged for the prize of your choice.

The program has been designed to thank everyone. Even dispensing a single unit earns you enough points to receive a free tube of Interplak Dental Gel. People who dispense more frequently can save their points and choose from a wide range of prizes; Ray-Ban T shirts, a Bradley pen set, a 16 inch freshwater pearl necklace, Ray-Ban sunglasses, a pair of Bushnell binoculars or a Bushnell telescope, official N.H.L. jerseys, a Daniel Dakota brass and oak clock, a Weider step machine, a Kuwahara mountain bike, a Group of Seven limited edition print, or a Konica camera.

Contact your Bausch & Lomb representative if you wish to become one of the increasing number of DAPper dentists or hygienists. Your rep has all the information, and will provide you with all the assistance you'll need to participate in the Interplak Dispenser Appreciation Program. □

Just Ask About the Just Ask Program

The Just Ask Program is another example of how Bausch & Lomb is working with Dental Professionals to improve their patients oral health. The program has four simple goals; to inform patients about the importance of plaque removal, to encourage patients to ask about the Interplak Instrument, to enable dentists to track the effect that Interplak is having on the health of their patient base, and to help new accounts to begin to inform their patients about the benefits of Interplak.

Patients learn about plaque by reading the "Gum Disease" brochures contained in the kit. The four colour brochures walk patients through the causes of gum disease, explain the four different stages of gum disease, list warning signs and explain how Interplak can play an important role in the prevention of periodontal problems.

Since many dental professionals find it easier to talk about Interplak if the patient mentions it first, the kit also contains a poster, a ceiling hanging display, additional brochures about Interplak, and a brochure stand. By strategically placing one or more of these items in your office, you can encourage patients to ask you about Interplak.

The kit helps dentists track the effect that the Interplak instrument is having on their patient base with a deceptively simple device; small Interplak stickers. By placing a sticker in the upper corner of a patient's record, you can instantly identify which patients are using Interplak. Then you can easily notice any improvement from prior check ups.

Last but not least, the kit contains an informative instruction manual that shows dental professionals how to begin explaining the benefits of Interplak to their patients; including answers to the most commonly asked questions, information on our service programs and details on our product courier return program. For more information just ask your Bausch & Lomb representative for details. □

PROFILE

Brushing off an old Complaint With a New Approach

"I don't have time to brush." In the fourteen years that Dr. Robert Allison has been practicing dentistry in Quebec City, he has heard that compliant from patients more than any other. Dr. Allison knows that they mean it. He estimates that if he had to rank the oral health of his patients on a scale of 1 to 10, only 20% would receive an eight or better.

So Dr. Allison has a problem. So do his patients. But Dr. Allison knows that his patients expect their dentist or hygienist to keep them informed of new oral care developments that solve patients problems. He knows that patients expect to be told about a new instrument that reduces the amount of time needed to effectively remove plaque.

Dr. Allison is pleased that he started telling patients, "If you brush for two minutes a toothbrush will do the job. Brush less then you need an Interplak." Telling patients about rinses or tartar control tooth paste failed to achieve noticeable improvement in his patients oral health. But Dr. Allison has noticed improvements in each of his approximately 100 patients that use the Interplak instrument.

Patients would rather be informed of new developments, than be told that their current hygiene habits are lacking. Dr. Allison finds that teenagers are much more interested in learning about Interplak, than hearing a lecture about flossing. Even skeptical patients can become excited. When a patient told him, "that's just another gadget. I won't use it. I already have a gadget under the sink." Dr. Allison replied that the Interplak is not a gadget. It is a new instrument, and he uses it personally. One week later the patient reported that he loved his new Interplak, and that his whole family was using it.

The above incident demonstrates an important point. Dr. Allison was completely honest with his response. He feels that honesty is crucial. Every member of his staff tried and approved of the Interplak, before they began talking to their patients about it.

Bausch & Lomb is proud to be able to help Dr. Allison, his hygienists, and his patients solve an old problem. We look forward to helping many other Canadian dental professionals. Keep up the good work Dr. Allison! □

Interplak Hits The Road

Everyone needs to remove plaque. Even when they are on vacation. Even when they're taking a business trip. That's why Interplak has hit the road. The new Interplak Traveller is the most effective and convenient way to clean your teeth while away from home. And it has features available only in Canada!

The Interplak Traveller has the same patented gear mechanism, same unique bristle configuration, and same efficiency as all our Interplak units. What makes the Traveller unique is it's portability.

Unlike other units that must be recharged when not in use, the Interplak Traveller is powered by an electric motor. Simply plug in the instrument, and it is ready to use.

The Interplak Traveller has several other features, that help ensure patient compliance by making it simple and easy to use. The cord stretches to six feet, enabling the user to stand over the sink even if the socket is located in an odd place. The handle of the Interplak Traveller is smaller, lighter and easier to manipulate than other Interplak models. In addition, the unique padded carrying case holds not only the Traveller but two additional brush heads as well. Therefore more than one person can use it while traveling.

The Interplak Traveller is ideal for your patients who travel frequently, for patients who prefer a small, light Interplak handle, large families who may need a second unit, and those patients who are looking for an unique gift.

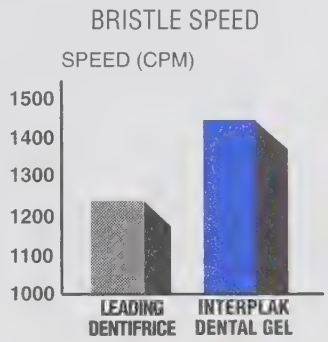
The Interplak Traveller is available at The Bay and London Drugs. For those practices who wish to offer it to their patients as a service, the Interplak Traveller is available at our special professional account price. □

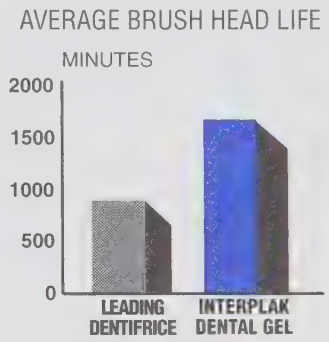
The Interplak Traveller Instrument: It's convenient carrying case, powerful 6 volt motor, and extended six foot cord are available only in Canada.

Introducing Interplak

Why an Interplak Dental Gel? The answer is easy to see if you understand how the Interplak Home Plaque Removal Instrument works. As you know, Interplak is able to clean teeth virtually plaque free because of it's unique bristle configuration, and because of it's patented high speed counter rotational action.

Just like on the tire of a ten speed bicycle, the highest speeds are obtained with the finest gears. Therefore the gear system inside the Interplak is extremely intricate. Normal toothpaste can clog the gears, slowing the unit and decreasing the life expectancy of the brush head, as you can see from the two graphs.





That's why in the past we have recommended that patients use a mouth wash instead of a toothpaste. While the Interplak unit doesn't need toothpaste to clean teeth virtually plaque free, mouth wash does not provide fluoride protection.

Thus the need for Interplak Dental Gel. Interplak Dental Gel has been specially formulated to maximize the performance of the Interplak unit. It actually lubricates the gears in the brush head; increasing bristle speed, and prolonging the life of the brush head. In addition, our Dental Gel has the same active ingredients, and provides the same amount of fluoride uptake, as any of the leading toothpastes. It's fresh minty taste, freshens patients' breath and helps ensure that patient compliance with the Interplak remains high. Using the Interplak instrument and Interplak Dental Gel is no more abrasive than a manual brush plus the leading brand of toothpaste.

Interplak Dental Gel is now available at The Bay, Price Club, London Drugs, Cumberland, and most Shopper's Drug Marts, Pharma Pluses and Jean Coutus. It is also available to the dental community, in a sample size, for those practices who wish to offer it to their patients as a service. □

WHAT DO YOU THINK?

The goal of Interplak Update is to further the dialogue we have established with the Canadian Dental community. We can't have a dialogue without your feedback. Did you learn anything while reading the Interplak Update? Did you find the newsletter entertaining? What would you like to see included in future issues? Call the editor at 1-800-668-7510 ext.284, or give your feedback to your Bausch & Lomb representative.

EDITORIAL

Cross Border Shopping Hurts Us All

While Canadians rarely travel to the U.S. for dental work, there can be no doubt that cross border shopping is hurting the Canadian dental community. According to the Canadian Federation of Independent Business, 117,000 full time Canadian jobs were lost as a result of cross border shopping in 1991. That's 117,000 people who lost their dental insurance. 117,000 people who aren't going to be visiting their dentist, or hygienist as often as they should.

Cross border shopping is particularly tragic when shoppers cross the border in search of bargains that don't exist. That's why we'd like to use this column to clear up a few misconceptions about purchasing Interplak in the U.S. You may find it worthwhile to pass at least some of this information on to your patients. Every little bit helps.

APPLES & ORANGES

Most cross border shoppers who claim to receive a fantastic deal on Interplak in the U.S. are comparing apples to oranges.

MYTH: The product available in the U.S. is identical to the Canadian product.

FACT: There are two key differences. First, the brush heads in the U.S. are made with plastic gears. In Canada we use only metal gears. Because metal gears last longer, in some cases two to three times longer, buying a unit in Canada saves money on replacement brushes. Secondly, the travel model available in the U.S is substantially different from the Canadian model. The Canadian model comes with a superior, more convenient carrying case, the Canadian cord is 50% longer, and the unit is C.S.A. approved. C.S.A. approval is important because if a fire is started by any non C.S.A. approved electrical appliance, some Canadian insurance companies will not honour the insurance claim.

MYTH: Cross border shoppers save money by avoiding the G.S.T.

FACT: Cross border shoppers do not pay G.S.T., but they do not save money. In most cases cross border shoppers pay state sales tax. In addition, we have $10 rebates available for all dental offices to distribute. They more than cover the G.S.T., and they are only valid in Canada.

MYTH: The best price a patient can receive on an Interplak instrument is available in the U.S.

FACT: The most inexpensive way for a patient to obtain an Interplak is through your office. For more details on professional account pricing, contact your Bausch & Lomb rep, or call our customer service department at 1-800-668-7510. □

ENVIRONMENTAL UPDATE

Bausch & Lomb Committed to the Environment

Holes in the ozone layer. U.V. radiation. Rapidly filling landfill sites. Deforestation. All these issues have forced Canadians to become concerned about the environment. To answer our customers concerns, Bausch & Lomb has spent the last six months aggressively trying to find ways that we can reduce, reuse and recycle. Every employee, no matter how senior or junior, has been involved. Bausch & Lomb is proud of the successes it has achieved. Though every action we have taken can not be duplicated in a dental office, we would like to share our employees ideas with you. You may be able to implement some of the same actions we have.

PRACTICAL SOLUTIONS

Double siding all photocopies and letters will reduce the quantity of paper used by 40%. At Bausch & Lomb we estimate that we will save 300,000 sheets per year.

Using recycled paper, as we have done, will reduce the number of trees cut each year, and show your patients that you are concerned about the environment.

A waste management program has allowed Bausch & Lomb to reduce the waste sent to landfill sites by 40%. You could talk to your landlord, or fellow tenants about starting a similar program in your building.

Computers not only reduce work, but they can also dramatically reduce paper consumption. Our new computer that has just come on line will allow us to save 950,000 sheets per year.

COMMENTS?

We hope you have found this information useful. If you have any additional environmental tips you would like to share with your colleagues in the next issue of The Interplak Update, or if you would like more information on Bausch & Lomb's "Green for Growth" campaign simply phone the editor at 1-800-668-7510, ext 284. □

The Interplak Update

is published by
Bausch & Lomb Canada Inc.
Oral Care Division
85 Leek Crescent, Richmond Hill, Ontario, L4B 3B3
Editor: Doug Johnson
Please forward comments or suggestions to your Bausch & Lomb representative or the editor at 1-800-668-7510, ext 284

© Bausch & Lomb Canada Inc., Bushnell, Ray-Ban and Interplak are registered trademarks of Bausch & Lomb Incorporated

This material contains 50% recycled fibres including 10% post consumer fibres.

sion – where stress may have compounded the existing problem of an occlusal interference created by a recently positioned orthodontic bracket – was sports related.

It is apparent, both from the literature and the data collected during the Games, that the number of sports-related dental injuries is small compared to the number of sports injuries that occur in other body regions, such as the knee or ankle. However, the figures reported in the literature generally reflect the number of injuries by classification, rather than the number of injuries by mechanism. As a result, related injuries may be recorded as separate injuries, thereby inflating the statistics.

Related injuries may be defined as injuries to separate structures that occur simultaneously. As an example, the forces that result in chipped or broken teeth frequently also cause lacerations to the lip or cheek. This point must be considered carefully when designing data collection forms or encoding data for analysis.

One aspect of quality health care that must be considered when organizing medical services for major athletic events is the availability of accurate medical information regarding the participants. Pre-competition medical assessments are integral to the effective delivery of dental services. This information was not available at the 1989 Canada Games. Nevertheless, these assessments should be mandatory for each participant. For dental purposes, they should include a brief description of medical conditions, recent or current medications, any major dental treatment performed immediately prior to the games, and the date of the last dental examination. As well as providing important data for emergency dental assessment and treatment, the inclusion of this type of information on a pre-competition medical assessment may stimulate athletes to seek any necessary dental care, which may otherwise be neglected prior to competition.

Finally, an effective and efficient dental service must include a well-designed and administered education component. In setting objectives for an educational component, three facets must be addressed. First, all health care personnel working at sporting events must be instructed in dental first aid. At these Games, this training proved to be most valuable for the members of the medical team. On-site treatment was provided immediately, and dental referrals were appropriate and handled efficiently. Second, dental health education, including education on the prevention of dental injuries, must be presented to athletes, coaches, parents, and sport governing bodies. This facet of the program should include information regarding the benefits of mouthguard use, especially for those athletes involved in high-risk sports. Third, all dental personnel involved with sports programs must be kept up-to-date concerning the latest preventive and treatment techniques available.

Conclusion

The dental services provided at sporting events, historically, have been of a consultative nature, and were typically not an integrated component of a multidisciplinary sports medicine team. However, it is essential that dental services are included in the organization of medical services for major games. The immediate availability of dentists for the assessment and treatment of dental problems often allows an injured athlete to return to competition, and also prevents secondary complications. Furthermore, the dental team should include general practitioners, specialists in the various disciplines, and lab technicians. In addition, an efficient mouthguard service should be available to participants. Lab facilities for this service should be located in close proximity to, or ideally in, the central medical clinic. Finally, in-service education on dental first aid should be provided to members of the medical team, in order to optimize the assessment and management of dental injuries.

Dental conditions occurring during major games or competitions will not always be caused by trauma, but may occur as the result of participants postponing regular dental treatment until a problem arises. This was most evident during these Games, where six of the 15 individuals treated (40 per cent), all of whom were coaches or officials, presented with conditions unrelated to sports participation.

Basketball, field hockey and wrestling presented with the highest incidence of dental injuries. This can be expected due to the nature of these sports and, perhaps, the participating athletes continued inattention to the use of mouthguards. None of the athletes who sustained oral injuries during the Canada Games were wearing mouthguards. Further study is required to investigate the risk of oral injury for athletes wearing mouthguards versus those not wearing mouthguards.

Finally, it is the recommendation of these authors that the groups involved in sport take a more active role in sports dentistry. Sports medicine groups should ensure that dentistry is not only included in their organization's plans, but also a vital component of those plans. It is the responsibility of dental health professionals to develop and promote prevention programs. Furthermore, it is also recommended that sports governing bodies and major games organizing committees be encouraged to take a more active role in promoting programs for the prevention of oral injuries and oral disease, up to and including the implementation of mandatory mouthguard rules. This should be particularly stressed in those sports considered to be high risk for oral injury. ■

Dr. Lee-Knight *is in private practice in Saskatoon, and is a part-time faculty member at the college of dentistry, University of Saskatchewan, Saskatoon, Sask. S7N OWO.*

Elizabeth Harrison *is a faculty member at the school of physical therapy, University of Saskatchewan.*

Connie Price *is on the staff of the department of physical therapy at the Royal University Hospital, Saskatoon, Sask.*

Reprint requests to **Dr. Lee-Knight**.

References

1. Davis, G.T. and Knott, S.C. Dental trauma in Australia. *Aust Dent J* 29:217-221, 1984.
2. Duda, M. Which athletes should wear mouth guards? *Phys Sports Med* 15:179-183, 1987.
3. Heintz, W.D. Bureau of Dental Health Education. Mouth protectors: a progress report. *JADA* 77:632-636, 1968.
4. Castaldi, C.R. First aid for sports-related dental injuries. *Phys Sports Med* 15:81-89, 1987.
5. Clegg, J.H. Mouth protection for the rugby football player. *Aust Dent J* 127:341-343, 1969.
6. De Wet, F.A. The prevention of orofacial sports injuries in the adolescent. *Int Dent J* 31:313-316, 1981.
7. Morrow, R.M. and Kuebker, W.A. Sports dentistry: a new role. The University of Texas Health Science Center at San Antonio. *Dent Sch Q* 2:10-13, 1986.
8. Morrow, R.M. and Bonci, T. A survey of oral injuries in female college and university athletes. *Athl Train* 24:236-237, 1989.
9. Moon, D.G. and Mitchell, D.F. An evolution of a commercial protective mouthguard for football players. *JADA* 62:568-572, 1961.

Handles Like Floss For A *"Smooth As Silk"* Finish.

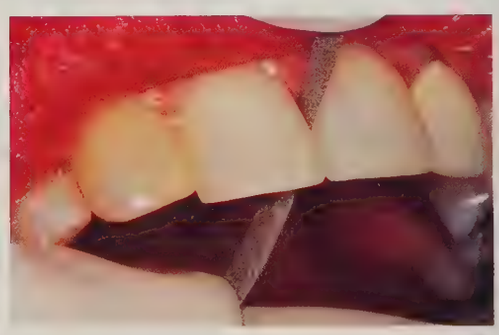
- *COMPO-STRIPS Are Flexible And Thin As Floss*
- *COMPO-STRIPS Are Available In An Assorted Pack And Individual Six Packs Of Each Size Through Authorized Dental Dealers*

COMPO-STRIP®

Hand Held Diamond Finishing Strips

Compo-Strip® diamond finishing strips are uniquely made, so you can quickly create a smooth finish on proximal surfaces. The reusable strips are unlike any other. They are of one piece construction to last and last and last.

Use color coded Compo-Strips in sequence - Trimming (T), Finishing (F) and Ultra-Finishing (UF). You can quickly finish porcelain veneers, proximal restorations, remove excess bonding materials or roughen enamel prior to etching. Compo-Strips can be ultrasonically cleaned and repeatedly sterilized in steam, chemical, or dry heat without any problem. In very tight contacts, first use Compo-Disc® handheld, edge cutting diamond discs to gain access.



- *All Diamond Construction Ensures Rapid Cutting*
- *Safe Sided To Protect Adjacent Teeth*

AUTOCLAVABLE CERTIFIED STERILIZABLE

LIMITED TRIAL OFFER

Only $15.50!

LIST $24.00

Your authorized dealer is dramatically reducing the price on the assorted package of six Compo-Strips (Item #13127) from 10/1/92 thru 11/30/92. Valid in CANADA only.

TRY COMPO-STRIPS

YOUR SATISFACTION IS GUARANTEED!

Premier Dental Products Co. • P.O. Box 111 • Norristown, PA 19404 • 1-800-344-8235 • (215) 277-3800
Premier Dental (Canada), Inc. • 480 Hood Road • Unit #3 • Markham, Ontario L3R 9Z3 CANADA • 1-800-465-8455

premier

Bonded Silver Amalgam Restorations

Ronald E. Jordan, DDS, MSD
M. Suzuki, DMD, M.Sc.
M. Balanko, DMD

Silver amalgam has been successfully used in dentistry for over a century (**Fig. 1**). There are many reasons for the demonstrated success of silver amalgam. It is a high-strength, dimensionally-stable material with excellent physical properties, and it is totally insoluble in mouth fluids. Furthermore, silver amalgam is a highly "techniques-insensitive" material. That is, it will forgive many more "manipulative abuses" than other restorative materials, including composite resin. In addition, silver amalgam is relatively simple to use and it is the only "self-sealing" restorative material available.

Silver amalgam does, however, have a few limitations as a restorative material. One of the major drawbacks is that silver amalgam is not a bondable material. Therefore, in order to provide long-term retention, silver amalgam restorations require the removal of considerably more intact tooth structure than restorations made with adhesive materials. Accordingly, silver amalgam weakens the remaining tooth structure rather than strengthening it. This is the main reason that cuspal fracture is fairly common with long-standing silver amalgam restorations.

The recent introduction of resin adhesive bonding materials for silver amalgam, such as Amalgam Bond[A] and All Bond[B] (Liner F), has been greeted with a high degree of enthusiasm by the profession, as these materials allow the dental practitioner to effect amalgam to amalgam repairs and bonded amalgam restorations. Amalgam Bond consists of 10 per cent citric acid/three per cent ferric chloride as a dentin conditioner, aqueous hema (Hydroxyethyl methacrylate) as a wetting agent, and 4 meta, hema and methyl methacrylate as the bonding agent.[1] All Bond Liner F makes use of either 10 per cent phosphoric acid or succinic anhydride and hema as dentin conditioning agents, NTG-GMA in acetone as a primer, and a proprietary base/catalyst fluoride-containing bonding resin. Although very little research has been published on these systems to date, DeSchepper et al[1] have reported mean tensile bond strengths of amal-

Fig. 1: A 10-year silver amalgam restoration.

Fig. 2: Maxillary premolar with weakened cusps.

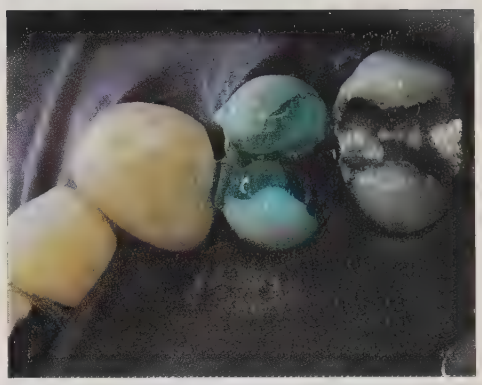


Fig. 3: All Etch is applied.

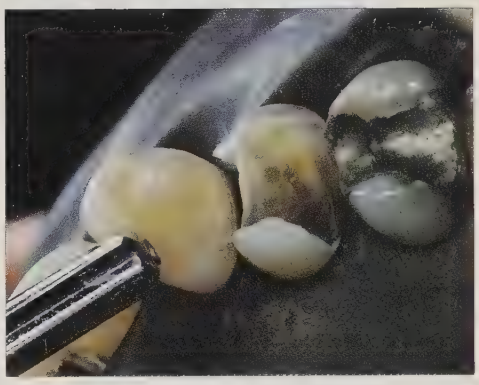


Fig. 4: The etched preparation is washed and air dried.

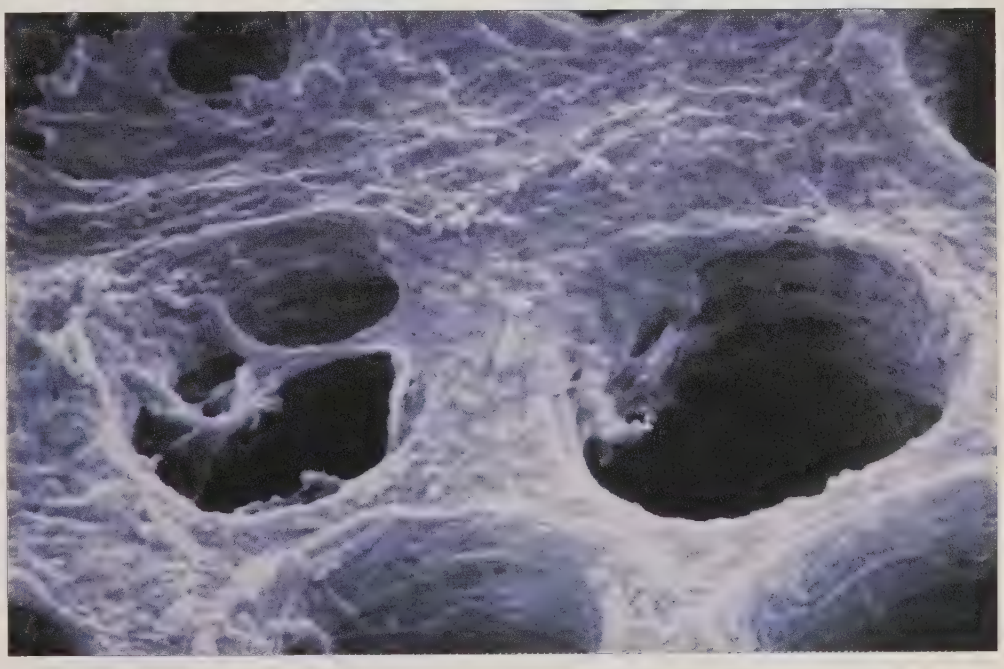


Fig. 5: SEM of dentin surface after the application of All Etch.

Fig. 6: The preparation is moistened with Bisco Cavity Cleanser.

Fig. 7: Five coats of mixed primer are applied to the preparation.

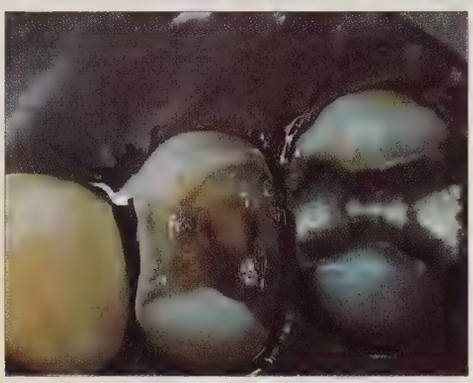


Fig. 8: The dentin/enamel has a highly reflective, glossy appearance after the insertion of mixed primer.

Fig. 9: All Bond Liner F.

Fig. 10: Application of All Bond Liner F.

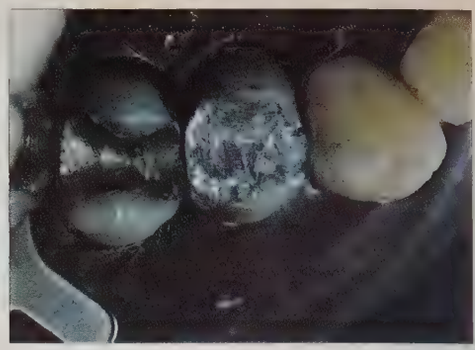


Fig. 11: The completed bonded amalgam restoration.

Fig. 12: The Bonded amalgam restoration after polishing.

Fig. 13: An MOD premolar preparation for bonded composite.

Fig. 14: A bonded MOD composite restoration of a maxillary premolar.

gam to dentin in the range of 10 to 11 megapascals using All Bond, and comparably very low to nonexistent bond values using the Amalgam Bond system. Roeder et al,[2] in another study, reported amalgam to amalgam bond strengths of 3.4 to 8.8 megapascals with All Bond and little if any bond strength with Amalgam Bond. Nonetheless, in a study carried out at the University of Manitoba involving 40 premolar and molar teeth with fractured buccal or lingual cusps in association with pre-existent silver amalgam restorations, all of which were repaired with new amalgam using Amalgam Bond adhesive, no failures were observed over a one-year recall period. Either of the two aforementioned materials may be used successfully for *amalgam-to-amalgam bonded repairs* with a high degree of clinical reliability, as well as for the fabrication of *bonded amalgam restorations.*

Bonded Amalgam Restoration

Fig. 2 shows a maxillary first premolar with severely weakened buccal and lingual cusps. Close examination of the preparation shows a near exposure on the disto-axial wall. Nevertheless, pulp protection is usually unnecessary, since the biological acceptability of both All Bond and Amalgam Bond is very high. All Etch[B] was injected to cover all of the dentin and enamel surfaces of the preparation (**Fig. 3**) for a 15- to 20-second period, followed by washing and drying (**Fig. 4**). The All Etch etches the enamel, removes the smear layer from the dentin, and opens the dentinal tubules (**Fig. 5**) without causing pulpal irritation. A moist cotton pledget[C] is then wiped over the dentin surface (**Fig. 6**), since All Bond bonds better to moist surfaces. All Bond Primer A and B are then mixed, and three to five successive coats are applied to the enamel and

dentin with a fine-tipped soft brush (**Fig. 7**), followed by gentle warm air drying. The dentin and enamel surfaces should appear glossy and highly reflective at this stage (**Fig. 8**). If they do not, another three layers of primer should be applied. The mixed primer totally seals the dentinal tubules and bonds to the dentin with a bond of 22 (dry) to 33 (wet) megapascals.[3] All Bond Liner F is then applied to the dentin-enamel surface (**Fig. 9**) using a fine-tipped soft brush, and after 30 seconds it is gently air blown (**Fig. 10**). After a metal matrix band is placed and wedged, silver amalgam alloy is incrementally condensed, after which the matrix band is removed and the silver amalgam restoration is carved to anatomic detail (**Fig. 11**). The bonded silver amalgam restoration has a number of advantages such as:

1. Retention is excellent.

2. There is no need for pins.

3. Remaining cusps are strengthened due to the bonding process and, accordingly, future cuspal fracture is highly unlikely (**Fig. 12**), as bonded amalgam restorations strengthen cusps in much the same manner as bonded composites (**Figs. 13 & 14**).

4. There is no postoperative sensitivity, since marginal leakage is totally eliminated.

This paper was excerpted from an article that appeared in the Journal of Esthetic Dentistry, March/April, 1992.

A: Parkell, Farmingdale, N.Y.

B: Bisco Inc., Itasca, Ill.

C: Bisco Cavity Cleaner, Bisco Inc., Itasca, Ill.

Dr. Jordan *is the dean of the faculty of dentistry at the University of Manitoba.*

Dr. Suzuki *is a professor and the head of the department of restorative dentistry, faculty of dentistry, at the University of Manitoba.*

Dr. M. Balanko *is an assistant professor, faculty of dentistry, at the University of Manitoba.*

References

1. DeSchepper, E.J., Cailleteau, J.G., Roeder, L. et al. In vitro bond strengths of amalgam to treated dentin. *J Esthet Dent* 3(4):7-10, 1991.
2. Roeder, L.B., DeSchepper, E.J. and Powers, J.M. In vitro bond strength of repaired amalgam with adhesive bonding systems. *J Esthet Dent* 3(4):15-17, 1991.
3. Suh, B.I. Allbond – Fourth Generation Dentin Bonding Systems. *J Esthet Dent* 3(4):18-26, 1991.

ALL-BOND® 2
UNIVERSAL DENTAL ADHESIVE SYSTEM

Dual Cured for Versatility

product capabilities

- ***Dentin/Enamel Bonding***
- ***Porcelain Repair***
- ***Metal Crown/Maryland Bridge Cementation***
- ***Porcelain/Composite Crown Cementation***
- ***Inlay/Onlay Cementation***
- ***Porcelain/Acrylic Repair***
- ***Composite Repair***
- ***Composite to Amalgam/Metal***
- ***Adhesive Amalgam Restorations***
- ***Fresh Amalgam to Old Amalgam***
- ***Desensitizing Tooth (Root) Surface***
- ***Shallow Class V Restorations***
- ***Post Cementation***
- ***Core (Composite) Build-Up With Post***
- ***Metal to Metal (Implant) Cementation***

Clinically Proven

ALL-BOND® 2
is available exclusively through :

In Ontario, New Foundland, New Brunswick and Nova Scotia,
CLINICAL RESEARCH DENTAL
SUPPLIES & SERVICES INC.
1-800-265-3444

In Québec, Manitoba, Alberta, Saskatchewan and British Columbia,
BISCO DENTAL PRODUCTS
1-800-667-8811

Esthetic alternatives for posterior teeth: Porcelain and laboratory-processed composite resins

J.N. Walton, CD, DDS, Cert. Prosth., FRCD(C)
Vancouver, B.C.

ABSTRACT

Porcelain and laboratory-processed composite inlays and onlays are enjoying increasing popularity as a result of heightened patient concern over the esthetics and biocompatibility of restorative materials. This paper reviews current clinical concerns about porcelain and indirect composite restorations, focusing on indirect procedures, microleakage, technique sensitivity, long-term serviceability, finish and polish, abrasion, and wear resistance. The available data indicate that there are still significant limitations to the routine use of these esthetic alternatives for posterior restorations.

SOMMAIRE

Comme les patients ont davantage souci de leur apparence esthétique et de la biocompatibilité des matériaux de restauration, les inlays et les onlays en porcelaine et en produit composite traité en laboratoire gagnent en popularité. Dans cet article, on examine les questions qui se posent touchant les restaurations à la porcelaine et les restaurations indirectes avec un produit composite en se penchant surtout sur les procédures indirectes, les défauts microscopiques d'étanchéité, la sensibilité technique, l'état de fonctionnement à long terme, le fini et le poli, l'abrasion et la résistance à l'abrasion. Les données disponibles révèlent qu'il reste encore d'importantes restrictions touchant l'usage de ces produits esthétiques pour les restaurations postérieures.

Introduction

Although posterior esthetic restorations are generally thought of as relatively new inventions, porcelain inlays were actually advocated as early as 1862,[1] well before the widespread use of dental amalgam. The biocompatibility, durability, chemical inertness and esthetic qualities of porcelain were not enough, however, to overcome what Nyman referred to in 1905 as its "deplorable edge strength,"[2] and cast gold and amalgam became the standard intracoronal restorative materials for posterior teeth.

In recent years, public concern over esthetics and mercury toxicity has given new impetus to the search for alternative restorative materials. As a result, etched porcelain and laboratory-processed composite inlays and onlays are becoming increasingly popular. Unfortunately, these restorations still present a number of problems.These problems are examined in this paper by reviewing the current literature, with a particular focus on indirect procedures, microleakage, technique sensitivity, long-term serviceability, finish and polish, abrasion, and wear resistance.

Indirect Procedures

The relatively high cost of indirect procedures can be a problem for dental practitioners. While there are certain advantages inherent in being able to work outside of the mouth, two patient appointments and the services of a dental laboratory are usually required to complete an indirect procedure. As a result, an indirect, laboratory-processed composite inlay on a bicuspid tooth may be approximately four times more expensive (including laboratory fees) than a similar direct composite restoration, and this does not include the increased costs of the materials used in the indirect procedure (e.g. impression material, temporization, and luting resins).

However, as mentioned above, it can be much easier to work on the laboratory bench than in the mouth, and laboratory processing also allows improved control over the physical properties of composites. For example, decreased porosity and a more consistent depth of cure can be achieved. Reduced marginal gap formation is also likely, as most of the polymerization contraction of the composite takes place outside of the mouth. In fact, the shrinkage of a thin layer of resin luting cement is the only contraction that occurs intraorally.

Feilzer et al[3] and Davidson et al[4] have questioned the theory of reduced marginal gap formation with indirect composite restorations, however. They found that shrinkage in the thin layers (with a composite luting cement, for example) was significantly greater than it was in the thick layers. Earlier work by the same researchers[5] showed that the stress developed in a bonded composite restoration as a result of polymerization contraction depends on the geometry of the restoration. When the ratio of the bonded surface of a restoration to its free unbonded surface – what the authors call the "C-Factor" – is above a certain limit, the stress development exceeds the bond strength of the bonding agents present. If the C-Factor exceeds five, all shrinkage is directed uniaxially, leading to a contraction three times greater than the expected linear shrinkage. Feilzer et al concluded that when the C-Factor increased (i.e. when the resin cement layer was thinner and wall-to-wall distance decreased), the volumetric contraction, which normally occurs in three dimensions, was gradually converted to only one direction (perpendicular to the cavity walls). They postulated that this phenomenon was due to a decrease in the flow capacity parallel to the walls of the composite at high C-Factors, and suggested that if the preparation walls do not yield under these developing stresses (and it is unlikely that they

would), postoperative pain, cohesive failure and greater than expected marginal gaps may occur.

This conflicting information with regards to marginal gap formation in direct versus indirect composite restorations is reflected in similarly opposing reports regarding the related phenomenon of microleakage.

Microleakage

Microleakage has been described as the passage of bacteria, fluids, molecules or ions between a cavity wall and the restorative material applied to it.[6] Numerous studies have compared microleakage as it relates to direct and indirect restorative materials. A typical example of this work is the study done by Peutzfeld and Asmussen,[7] who found reduced gap formation – and therefore reduced microleakage – with direct composite fillings as compared to indirect restorations, while a study by Sheth et al[8] reported just the opposite. The laboratory specimens were thermocycled in the second study, however, and this procedure was not used in the first study.

Shortall et al[9] evaluated the marginal seal obtained with porcelain inlays, direct composites, and light/heat-cured composite inlays. They found that the direct composites showed the most microleakage, while the etched porcelain inlays showed the least. They did not thermocycle the samples, however. Sorenson et al[10] found comparable marginal fidelity among CAD-CAM (computer-assisted design and machining) glass inlays, cast gold, direct and laboratory-processed composites, and ceramic inlays. In this, as in many other studies, dentin margins showed significantly greater leakage than enamel margins when an etching technique was used.

The conflicting findings in the study of microleakage, once again, point out the difficulties in standardizing techniques[11] and in comparing laboratory findings with intraoral results.[12] Recent evidence documenting the differences in the bonding abilities of various areas of dentin further complicates the picture.[13]

Technique Sensitivity

Technique sensitivity is not a new phenomenon in "adhesion dentistry." There are valid clinical concerns about the translatability of *in vitro* results to *in vivo* applications, particularly for procedures involving dentin bonding. The challenges inherent in following the complex and varying protocols used by different bonding systems, and the sheer difficulty of intraoral bonding and finishing, have led to clinical results that have been less impressive than those predicted by existing laboratory studies. In addition, the need to use rubber dam isolation and meticulous step-by-step procedures with all bonding techniques makes these technically difficult procedures even more demanding, especially on posterior teeth.

Long-Term Serviceability

Long-term studies of porcelain and laboratory-processed composite restorations are under way. For the time being, however, clinicians using these materials must rely on the short-term studies that are currently available. Bessing and Lindqvist[14] made a preliminary report on Isosit (Ivoclar, Pinehurst, N.Y.) – a heat- and pressure-cured composite material marketed as Concept (Williams Dental Co., Pinehurst, N.Y.) in North America – after 17 months of intraoral function. All but one of the inlays evaluated was considered satisfactory at the end of the evaluation period.

Mormann et al[15] published three-year findings on Cerec (Siemens, Bensheim, Ger.) CAD-CAM-generated ceramic inlays, but their results were obtained from a single patient (whose restorations were judged to be satisfactory). The same authors[15] updated and expanded this work in a study of 94 Cerec inlays in 30 patients. These restorations were assessed after at least three years of service, and 92 were judged to be clinically excellent using modified USPHS criteria.

Thus, while the initial results for these posterior esthetic restorations are encouraging, long-term clinical evaluation is still lacking.

Finishing and Polishing

The finishing and polishing of composites, whether direct or indirect, has been fairly well accepted. However, the same cannot be said about the intraoral finishing of porcelain. Rosenstiel et al,[17] in comparing the strength and stainability of glazed and polished porcelain, found no difference in the staining characteristics of the two materials, but the polished specimens showed higher fracture toughness values. It is not clear how this relates to the oral cavity, because these specimens were polished extraorally with pumice.

Haywood et al[18] described an intraoral finishing and polishing sequence for porcelain. Their protocol of using finishing diamonds, followed by 30 fluted finishing burs and then diamond polishing paste, produced a surface smoother than glazed porcelain, although the procedure is both time consuming and expensive.

Abrasion

The abrasiveness of even properly glazed or polished porcelain in opposition to natural teeth or other restorative materials is well documented.[19,20] Ideally, a restorative material should wear at the same rate as the enamel it replaces (which, according to Lambrechts et al,[21] is about 20 - 40μ m per year).

Seghi et al[22] studied the *in vitro* abrasive characteristics of four commercially-available ceramic materials placed in opposition to enamel cylinders. Each enamel specimen was one to two millimetres thick and was abraded for four hours with a device designed to produce continuous sliding contact between the enamel cylinders and the ceramic disks. Unshaded Dicor castable glass-ceramic (Dentsply/York Division, York, Penn.) caused the least wear, followed by Dicor with shading porcelain, while Optec H.S.P. (Jeneric/Pentron, Wallingford, Conn.) caused the most wear. Optec H.S.P. is a high-strength feldspathic porcelain with a leucite content approximately 40 per cent greater than that of a conventional metal-ceramic porcelain (Katz, 1989).

Delong et al[23] also found less abrasion in enamel opposed by unshaded Dicor. In their study, Dicor produced less wear of the opposing enamel – after 300,000 cycles in an artificial mouth – than either Cerestore (Johnson and Johnson Dental Care Co., New Brunswick, N.J.), a porcelain veneer over a reinforced ceramic core, or Ceramco (Johnson and Johnson Dental Care Co., New Brunswick, N.J.), a metal-ceramic porcelain.

Wear Resistance

Wear resistance is the flip side of the abrasion coin. The conundrum has been that, while porcelain stands up well to occlusal forces in terms of wear, it abrades the opposing teeth. Composites have exactly the opposite effect – they are kind to the opposing dentition, but subject to excessive wear themselves. Mitchem and Gronas[24] evaluated the *in vivo* wear of four different composites in dentures. The resins were placed in

nickel-chromium lower first molars, with acrylic resin opposing teeth. All four materials were used in each patient, and each patient was recalled annually over a four-year period to obtain profilometer measurements on replicas of the teeth and restorations. The composites evaluated were three direct-fill posterior materials – P30 (3M, Dental Products Division, St. Paul, Minn.), Ful-fil (L.D. Caulk, Milford, Del.) and Heliomolar (Vivadent, Amherst, N.Y.) – and one indirect material, Concept. While Heliomolar and Concept were statistically similar and showed significantly less wear than P30 and Ful-fil, both demonstrated more marginal deterioration than P30 and Ful-fil.

Burgoyne et al[25] looked at the *in vitro* wear of Brilliant Dentin and Brilliant DI (Coltene, New York, N.Y.), which are direct, light- and additional-heat-cured composite inlay materials, P50 (3M, Dental Products Division, St. Paul, Minn.), a direct visible-light-cured composite, and Concept, a heat- and pressure-cured material. Against porcelain, Concept and Brilliant Dentin showed significantly less wear than the other two materials, while against gold and enamel Concept showed the least wear and P50 the most. These findings conflict with those of Gray et al,[26] who found similar clinical wear between directly- and indirectly-placed composites. Such varying answers to the same question are common in the study of wear, and may be related to *in vitro* versus *in vivo* translatability, as well as to the difficulty in standardizing measuring techniques.[27] Nevertheless, the wear resistance of posterior composites, as a group, has been improving, and the majority of studies now appear to demonstrate much more clinically acceptable wear with these materials.

Future Directions

Current research seems to be focused on the areas of dentin bonding, which is the subject of numerous other articles, as well as composite resin technology, where resins that expand rather than contract on polymerization are being studied. However, the most exciting prospects may be occurring with computer-assisted design and machining (CAD-CAM) of ceramic restorations.

Obviously, using computers to design and produce dental restorations can result in significant savings in both time and labor. In CAD-CAM, the impression is replaced with 3D scanning, the articulator with 3D motion analysis, the cast with XYZ data transformation, the wax pattern by the computer design and the casting process with computer machining. The technology is in its infancy, however, and as might be expected, it still has significant shortcomings. Occlusal anatomy, as produced by the machining of the ceramic block for cementation, is crude at best. After bonding, the anatomy must be cut with diamonds intraorally, leading to problems with accuracy, time and the quality of finish. The marginal fit of CAD-CAM generated restorations is still less than ideal, leaving a larger than desired thickness of luting agent at the margins. Color matching has also been a problem, although the development of new ceramics may be addressing this concern. Dicor-MCG (Dentsply/York Division, York, Penn.) – a recent development of the Dicor cast ceramic line – seems to be showing promise in the areas of wear, abrasion and microleakage. It is similar to enamel in terms of its hardness and coefficient of thermal expansion,[28] and has improved polishability due to its fine particle size. At present, some computer hardware limitations include the inability to multi-task (i.e. the entire system is tied up while a restoration is being machined), the cost of the equipment and materials, and the durability of some of the machining components (e.g. water pump impeller, and diamond disks).

How do current CAD-CAM generated restorations compare with restorations fabricated by conventional means? Thordrup et al[29] evaluated the microleakage of direct ceramic inlays (fabricated by CAD-CAM) and indirect ceramic inlays (fabricated by a laboratory technician). One group of restorations was made in extracted molars, which were then thermocycled, stained and evaluated. A second group of restorations was placed intraorally and evaluated for marginal roughness, steps, gaps, discoloration, fractures and hypersensitivity, one week and six months after cementing. In general, the fit of the laboratory inlays was superior to that of the CAD-CAM inlays, both *in vitro* and *in vivo*.

Conclusion

It appears that there are still unresolved problems with esthetic alternatives for posterior teeth. Are the increased costs and time required for indirect, laboratory-fabricated restorations justified by significantly improved properties? The evidence from microleakage studies is inconclusive, while wear resistance and long-term serviceability appear to be enhanced with indirect restorations. New developments in the areas of ceramic materials, as well as in the instruments and techniques used to finish and polish them, may reduce concerns about the abrasion of the opposing dentition, but difficulties with technique sensitivity are likely to persist.

Meanwhile, the search for the ideal restorative material continues. Every few weeks, a new bonding agent, a new restorative material, or a new technique appear on the market to tantalize dentists with the possibility of restoring a tooth to its original appearance and function. While the temptation is strong, dentists must maintain a healthy scepticism, for there is much to be developed before they can predictably replace conventional posterior restorations with newer esthetic materials.

Dr. J.N. Walton *is an assistant professor in the department of clinical dental sciences, faculty of dentistry, at the University of British Columbia.*

Reprint requests to **Dr. Walton**, *Department of Clinical Dental Sciences, Faculty of Dentistry, UBC, 2199 Wesbrook Mall, Vancouver, B.C. V6T 1Z7.*

References

1. Qualtrough, A., Wilson, N. and Smith, G. Porcelain Inlays: a historical view. *Oper Dent* 15:61-70, 1990.
2. Nyman, J. Porcelain problems. *Dental Cosmos* 47:1166-1184, 1905.
3. Feilzer, A., De Gee, A. and Davidson, C. Increased wall-to-wall curing contraction in thin-bonded resin layers. *J Dent Res* 68:48-50, 1989.
4. Davidson, C., Van Zeghbroeck, L. and Feilzer, A. Destructive stresses in adhesive luting cements. *J Dent Res* 70:880-882, 1991.
5. Feilzer, A., De Gee, A. and Davidson, C. Setting stress in composite resin in relation to configuration of the restoration. *J Dent Res* 66:1636-1639, 1987.
6. Kidd, E. Microleakage: a review. *J Dent* 45:199-206, 1976.
7. Peutzfeld, A. and Asmussen, E. A comparison of accuracy in seating and gap formation for three inlay/onlay techniques. *Oper Dent* 15:129-135, 1990.
8. Sheth, P, Jensen, M. and Sheth, J. Comparative evaluation of three resin inlay techniques: microleakage studies. *Quintessence Int* 20:831-836, 1989.
9. Shortall, A., Baylis, R., Baylis, M. et al. Marginal seal comparisons between resin-bonded class II porcelain inlays, posterior composite restorations, and direct composite resin inlays. *Int J Prosthodont* 2:217-223, 1989.
10. Sorenson, J., Avera, S., Kang, S. et al. Marginal fidelity and microleakge of posterior

systems. International Symposium on Computer Restorations, Zurich Dental Institute, University of Zurich, 1991.
11. Retief, D. Standardizing laboratory adhesion tests. *Am J Dent* 4:231-236, 1991.
12. Pashley, D. In vitro simulations of in vivo bonding conditions. *Am J Dent* 4:237-240, 1991.
13. Duke, E. and Lindemuth, J. Variablity of clinical dentin substrates. *Am J Dent* 4:241-246, 1991.
14. Bessing, C. and Lundqvist, P. A one-year clinical examination of indirect composite resin inlays: a preliminary report. *Quintessence Int* 22:153-157, 1991
15. Mormann, W., Brandestini, M., Lutz, F. et al. CAD-CAM ceramic inlays and onlays: a case report after 3 years in place. *JADA* 120: 517-520, 1990.
16. Mormann, W., Gotsch, T., Krejci, I. et al. Clinical status of 94 Cerec ceramic inlays after 3 years in situ. International Symposium on Computer Restorations, Zurich Dental Institute, University of Zurich, 1991.
17. Rosenstiel, S., Baiker, M. and Johnston, W. A comparison of glazed and polished dental porcelain. *Int J Prosthodont* 2:524-529, 1989.
18. Haywood, V., Heymann, H. and Scurria, M. Effects of water, speed and experimental instrumention on finishing and polishing porcelain intraorally. *Dent Mater* 5:185-188, 1989.
19. Craig, R. *Restorative Dental Materials*, ed. 8, St. Louis, C.V. Mosby, p. 484, 1989.
20. Monasky, G. and Taylor, D. Studies on the wear of porcelain, enamel, and gold. *J Prosthet Dent* 25:299-306, 1971.
21. Lambrechts, P., Braem, M. and Vanherle, G. In vivo wear of composite resins. *J Dent Res* 67:75, Abstract No. S23, 1988.
22. Seghi, R., Rosenstiel, S. and Bauer, P. Abrasion of human enamel by different dental ceramics in vitro. *J Dent Res* 70:221-225, 1991.
23. Delong, R., Sasik, C., Pintado, M. et al. The wear of enamel when opposed by ceramic systems, *Dent Mater* 5:266-271, 1989.
24. Mitchem, J. and Gronas, D. The use of dentures for the evaluation of the abrasive wear of composites. *J Dent Res* 69:126, Abstract No. 142, 1990.
25. Burgoyne, A., Nicholls, J. and Brudvik, J. In vitro two-body wear of inlay-onlay composite resin restoratives. *J Prosthet Dent* 65:206-214, 1991.
26. Gray. W., Suzuki, M., Jordan, R. et al. Clinical evaluation of indirect composite restorations – 3 year results. *J Dent Res* 70:344, Abstract No. 633, 1991.
27. Leinfelder, K., Aldridge, D. and Teixeira, L. Wear rates of posterior composite resins. *JADA* 112:829, 1986.
28. Grossman, D. Structure and physical properties of Dicor/MCG glass-ceramic. International Symposium on Computer Restorations, Zurich Dental Institute, University of Zurich, 1991.
29. Thordrup, M., Isidor, F. and Horsted-Bindslev, P. Cerec or laboratory fabricated iniays? International Symposium on Computer Restorations, Zurich Dental Institute, University of Zurich, 1991.

DID YOU KNOW?

The story of the "Praying Hands"

The famous "Praying Hands" was created by Albrecht (Albert) Durer, the son of a Hungarian goldsmith. He was born in Nuremberg, Germany, the third child in a family of 18 children, on Good Friday 1471 and died in the same city April 6, 1528. As is the case with nearly all of genius, fact and fancy often become interwoven — and a legend is created of the artist as we know him today.

It is said that while studying art, Albert and a friend, also an apprentice, roomed together. However, their meagre income soon proved insufficient to meet their expenses for rent, for their room, for food and other living expenses.

Albert suggested that he would go to work to earn the necessary income for both of them while his friend pursued his studies. When finished, the friend would then go to work to provide support, while Albert continued his studies. The friend was pleased with the plan, except he insisted that he be the first to work, and that Albert continue to study.

This plan was followed accordingly. Eventually Albert became a skilled artist and engraver. Returning to the room one day, having sold a wood engraving, Albert announced that he was now ready to assume the burden of support while his friend studied. But alas, as a result of the long period of hard and menial labour, his friend's hands had now become rough and stiff and the joints were so swollen that he was no longer able to hold and use the brush with delicate skill. His career as an artist was ended.

Albert was deeply saddened by this great disappointment which his friend had suffered. One day when he returned to the room he heard his friend praying, with his hands held in a reverent attitude of prayer. At this moment Albert received the inspiration to create the picture of those "praying hands." His friend's lost skill could never be restored — but, through the picture of the praying hands Durer felt that he at least could express his love and appreciation for the self-sacrificing labor which his friend had performed for him.

Oral rinse
℞ Tantum ™
(Benzydamine HCl Solution)

Prescription relief of oral pain and inflammation.

Summary of prescribing information

THERAPEUTIC CLASSIFICATION
Topical Analgesic — Anti-Inflammatory

Action
Animal studies using the parenteral route have shown that "Tantum" Oral Rinse possesses properties of an analgesic—anti-inflammatory agent. This effect is not mediated through the pituitary-adrenal axis. Studies using the topical route have demonstrated the local anesthetic properties of benzydamine hydrochloride. In controlled studies in humans with oro-pharyngeal mucosity due to radiation therapy, "Tantum" Oral Rinse provides relief through reduction of pain and edema. Similar studies in patients with acute sore throat demonstrated relief from pain.

Indications
"Tantum" Oral Rinse is indicated for relief of pain in acute sore throat and for the symptomatic relief of oro-pharyngeal mucositis caused by radiation therapy

Contraindications
"Tantum" Oral Rinse is contraindicated in subjects with a history of hypersensitivity to any of its components.

Precautions
The use of undiluted "Tantum" Oral Rinse may produce local irritation manifested by burning sensation in patients with mucosal defects. If necessary, it may be diluted (1:1) with lukewarm water. Since "Tantum" Oral Rinse is absorbed from the oral mucosa and excreted mostly unchanged in the urine, a possibility of its systemic action has to be considered in patients with renal impairment.

Use in Pregnancy
The safety of benzydamine HCl has not been established in pregnant patients. Risk to benefit ratio should be established if "Tantum" is to be used in these patients

Use in Children
Safety and dose directions have not been established for children five years of age and younger.

Adverse Reactions
The most frequent adverse reactions reported are: local numbness (9.7%), local burning or stinging sensation (8.2%), nausea and/or vomiting (2.1%). The least frequent were reports of throat irritation, cough, dryness of the mouth associated with thirst, drowsiness and headache.

Treatment of Overdosage
There are no known cases of overdosage with benzydamine HCl gargle. Since no specific antidote for benzydamine is available, cases of excessive ingestion of the liquid should receive supportive symptomatic treatment aimed at rapid elimination of the drug.

Dosage and Administration
Acute sore throat: Gargle with 15 ml every 1 1/2 to 3 hours keeping in contact with the inflamed mucosa for at least 30 seconds. Expel from the mouth after use

Radiation Mucositis: Use 15 ml as a gargle or rinse repeated 3-4 times a day, keeping in contact with the inflamed mucosa for at least 30 seconds and then expel from the mouth. Begin "Tantum" Oral Rinse the day prior to initial radiation therapy; continue daily during the treatment and after cessation of radiation until the desired improvement is obtained.

Availability
Tantum Oral Rinse is available in 100 and 250 ml bottles. "Tantum" Oral Rinse is a clear yellow-green liquid containing 0.15% benzydamine hydrochloride in a pleasant-tasting aqueous vehicle with 10% ethanol.

Product monograph is available on request.

References:

1. Simard-Savoie S and Forest D. *Curr Ther Res* 1978;23(6):734-45.
2. Whiteside MW. *Curr Med Res Opin* 1982;8:188-9.
3. Wethington JF. *Clin Ther* 1985;7(5):641-6.
4. Product monograph.
5. Yankell SL. Evaluation of benzydamine HCl in patients with aphthous ulcers. *The Compendium of Continuing Education* 1981; II(1).
6. Epstein JB. *Int J Radiation Oncology Biol Phys* 1989;16(6):1571-5.

PAAB CCPP

3M Pharmaceuticals
3M Canada Inc.
Post Office Box 5757
London, Ontario N6A 4T1

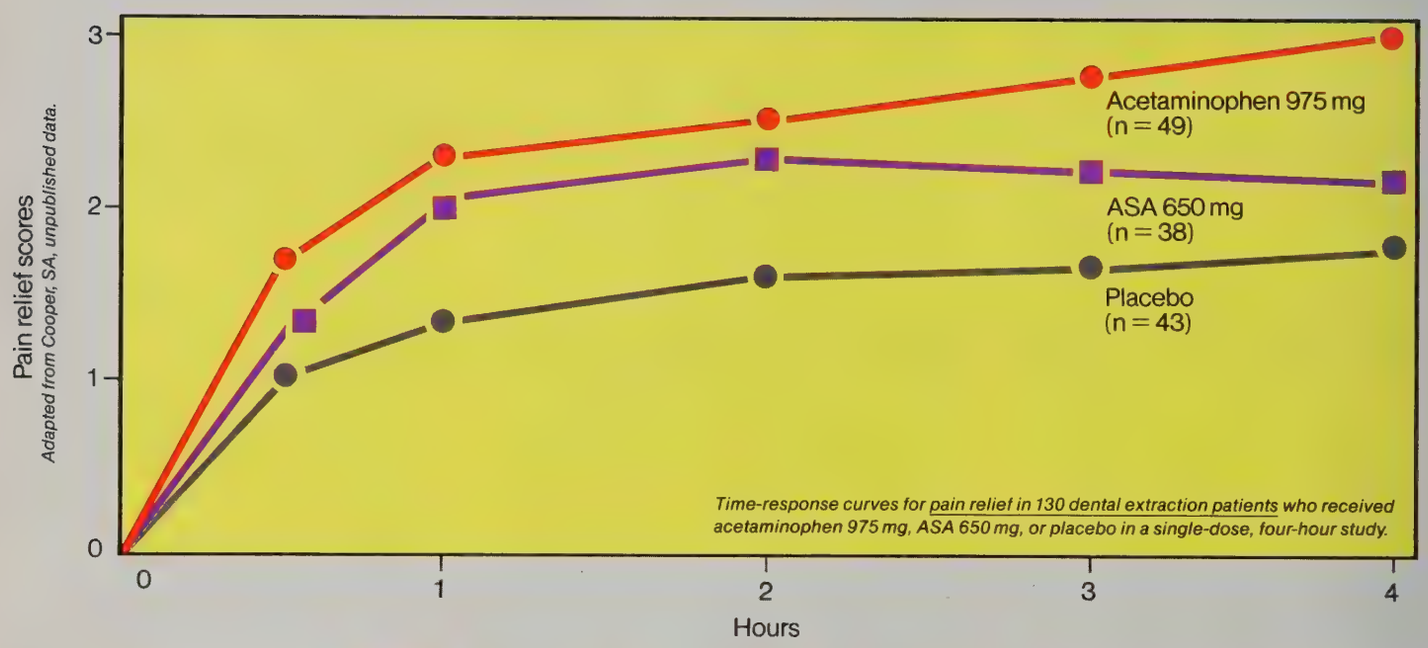
3M

YOU HAVE TO THINK ABOUT MUCH MORE THAN PAIN RELIEF WHEN YOU RECOMMEND AN ANALGESIC

With some of the many analgesic choices available, you need to address a lot of medical questions to make a responsible professional recommendation.

Is the patient asthmatic or sensitive to salicylates, prone to ulcers, taking potentially incompatible drugs? A "yes" to any of these questions would exclude any ASA or ASA-narcotic combination product as well as all NSAIDs. And, of course, if there is a risk of bleeding, they would also all be contraindicated because their antiplatelet activity could aggravate bleeding.

Extra-Strength TYLENOL acetaminophen is a logical choice. It is not contraindicated in any of these situations.



Time-response curves for pain relief in 130 dental extraction patients who received acetaminophen 975 mg, ASA 650 mg, or placebo in a single-dose, four-hour study.

EXTRA-STRENGTH TYLENOL* acetaminophen CAPLETS

A responsible professional recommendation combining excellent safety and efficacy profiles

McNEIL McNeil Consumer Products Co.
Guelph, Canada N1K 1A5

*Trademark
© McNeil Consumer Products Co. 1991
PAAB CCPP

A critical view of the rationale for routine, initial and periodic radiographic surveys

R.G. Stephens, DDS, M.Sc.
S.L. Kogon, DDS, M.Sc.
M.R. Speechley, BA, MA, PhD
W.J. Dunn, DDS
London, Ontario

ABSTRACT

Most dentists and dental faculties use an initial radiographic survey for the comprehensive-care patient rather than selective radiography, as recommended by professional organizations and radiation protection agencies. Survey or screening radiography has been justified in the belief that it is an essential health service designed to disclose serious occult disease and that failure to use such films might expose the dentist to successful malpractice litigation. However, incidence data indicate the chance of disclosing tumors, non-inflammatory cysts or other serious bone disease in the asymptomatic patient by screening jaw films is infinitesimal. On this basis, the practice is not justifiable as a public health measure, nor is the dentist who follows published national guidelines for prescription radiography vulnerable to successful litigation.

SOMMAIRE

La plupart des dentistes et des facultés de dentisterie prennent des radiographies chaque fois qu'ils ont des patients à traiter au lieu d'en prendre de façon sélective comme le recommandent les organismes professionnels et les services de radioprotection. On a voulu justifier cette pratique en disant qu'elle constitue un service de santé essentiel pour déceler les maladies sérieuses cachées et que le dentiste qui s'en abstient s'expose à des poursuites pour faute professionnelle. Cependant, les données touchant l'incidence de ces maladies cachées révèlent que les chances de dépister des tumeurs, des kystes non inflammatoires ou d'autres maladies osseuses graves chez les patients ne présentant aucun symptôme restent très minimes. Pour cette raison, la prise régulière de radiographies comme mesure de santé publique n'est pas justifiée, et tout dentiste qui se conforme aux directives nationales à ce sujet ne s'expose guère à être convaincu de faute professionnelle si jamais on le poursuit pour n'avoir pas pris régulièrement des radiographies.

Introduction

Health and Welfare Canada[1] and the U.S. Department of Health and Human Services[2] have endorsed the concept that radiographic examinations should be individualized for each patient. As well, national professional organizations such as the Canadian Dental Association (CDA)[3] and the American Dental Association (ADA)[4] have published guidelines to assist the profession in applying this principle. The current versions of these guidelines stress that clinical examination should determine whether radiography is indicated for diagnosis and treatment (**Table I**).[5] The clinical signs, symptoms and history that determine the need for radiography are called selection criteria, and the method is termed prescription radiography.

Thus, the earlier concept of screening radiography using a full-mouth periapical survey (FMS) or a panoramic plus bitewings (BW) for all new patients prior to clinical examination is replaced by the selective use of diagnostic films. As well, the use of periodic surveys at predetermined intervals in the absence

TABLE I

Representative Excerpts From Guidelines For Dental Radiography

CDA[3]	"The prescription... must be based on a clinical examination..."
	"The justification for taking dental radiographs must be determined by a perceived need to obtain specific information which could contribute to diagnosis or prevention rather than utilizing the concept of the routine periodic examination..."
ADA[4]	"...as each patient is different from the next, so should radiographic examination be individualized for each patient."
Health & Welfare Canada[1]	"It is considered to be bad dental practice to X-ray persons unnecessarily, as in a survey, and this is especially to be deplored when children are exposed."
	"It is also considered bad dental practice to take 'routine' X-rays prior to a clinical examination by the dentist."
Ontario Ministry of Health[5]	"... a radiograph should only be taken when a diagnostic need for it has been established by a prior clinical examination by a dentist. Routine full-mouth and panoramic examinations before clinical examination are radiologically and ethically unacceptable."

of clinical indications is not recommended. The exception is the use of bitewing radiography for caries. Even here, the arbitrary interval of six months has been replaced by much longer and more flexible time schedules geared to age and caries activity.

The CDA and ADA guidelines endorse the doctrine of risk/benefit developed by the International Commission on Radiologic Protection (ICRP),[6] which states that the potential risk of a proposed radiological procedure is justified if there is a net benefit to the patient. The profession and governmental agencies, in accepting this doctrine, have responded to legitimate public concern about the cost and safety of certain radiation practices that were unproductive and therefore unnecessary.

In view of the official position, it is surprising that as recently as 1987 the majority of dental schools in Canada and the United States were teaching the use of a standard radiographic examination for all comprehensive-care patients.[7] The evidence is unmistakable that the radiographic practices of these faculties, and by inference the teaching doctrine, are incompatible with the policy statements of the profession and the radiation protection agencies. Further, it is obvious that these teaching practices are more consistent with those of the 1960s and '70s, when FMS plus BW for all complete-care patients was the accepted protocol.[8] The premise for these practices was the belief that "there are numerous pathological situations that cannot be detected clinically until a large amount of normal tissue is involved, yet a radiograph may reveal such a situation while it is still incipient."[8] Students were taught that even in the absence of clinical indications, all new patients should have an FMS to ensure that a silent lesion, i.e. occult disease, was not overlooked. By continuing this practice, the majority of the academic community appears to be demonstrating a fundamental disagreement with the official recommendations.

In this article, we will discuss various reasons, which we believe to be misconceptions that may account for the contradiction. The scientific basis for initial and periodic screening radiography will be examined in terms of both the incidence of bone disease, with special reference to occult lesions, and the efficiency of radiography in disclosing such lesions. In addition, the legal liability of dentists who choose to practise according to official recommendations will be discussed.

Background Literature

In 1987, Kantor[7] surveyed all U.S. and Canadian dental schools on their current radiographic practices. Eighty-one per cent preferred a standard examination for comprehensive care patients rather than radiographs "prescribed selectively according to patient needs." Approximately the same preference was stated for child patients and the edentulous. Forty-eight per cent of the schools preferred a FMS plus BW, a further 19 per cent added a panoramic film to this examination, while 14 per cent used some combination of FMS, panoramic and BW. Thus, only 13 of 69 schools (19 per cent) used selection criteria from clinical examination to determine the prescription composition. In view of the policy position of the American Association of Dental Schools on the use of ionizing radiation – that institutions should teach students to "assess critically the need for diagnostic information" – Kantor concluded that "many dental schools are not meeting these educational and patient care objectives." This conclusion applied equally to seven of the 10 Canadian schools where standard examinations were preferred.[9]

In 1981, the U.S. National Center for Health Care Technology[10] held a forum on dental radiology to study the development of selection criteria for prescribing radiographs. In a workshop discussion on lesions other than caries and periodontal disease, the importance of early detection of occult disease led the group to agree that "some sort of baseline radiographic information is desirable as part of the proper care of asymptomatic patients." As a consequence, they recommended FMS plus BW or a panoramic plus BW as a suitable initial survey.

Since most students will practise what has been taught, it should not be unexpected that two extensive U.S. studies showed, recently, that the concept of the initial radiographic examination is mirrored in the radiographic practices of general dentists. Matteson et al[11] reported that approximately 70 per cent used a set radiographic examination, either a FMS or panoramic plus BW, at the initial visit. Kaugars et al[12] determined that 56 per cent took routine FMS and 37 per cent took routine panoramic films.

The use of selection criteria to determine which diagnostic radiographs to prescribe has been shown to be effective in a number of studies.[13-16] Without exception, serious occult disease was not overlooked when fewer purely diagnostic films were used. Brooks[15] concluded that while the concept of selection was valid, there were two primary concerns that dominated the reasons given to justify the continued use of screening radiography. The first reason was the safety of omitting films from a FMS. As stated by Brooks, "If the radiographs are not taken, there is no guarantee that a potentially significant lesion has not been overlooked." This is the traditional concern and the premise for screening. The author suggested that information on the likelihood of discovering tumors or cysts in asymptomatic patients would help to resolve this issue. Further, as a corollary, the author noted that many believe negative findings are of value to assure the patient of good oral health. The second concern was the threat of malpractice litigation. There is a tendency for clinicians to "cover" themselves with respect to radiographs, because of uncertainty over the general standard expected of a prudent practitioner in a particular society. These are undoubtedly the major reasons why many general dentists, and apparently most educators, do not practise selection or criteria-based radiography.

The Incidence and Relative Frequency of Tumors and Cysts of the Jaws

In this section, we will examine the incidence and relative frequency of tumors, cysts and other osseous lesions, since the rate of occurrence is a major determinant of the efficiency of screening radiography.

Definition of Terms

Screening radiography: This form of examination, often termed survey or baseline radiography, is conducted to detect abnormalities in asymptomatic people, either in the general population or in specific groups.

Incidence: This measures the number of newly diagnosed cases of a disease in a given population during a specified period. Although the rate is usually expressed as cases per 100,000 persons per year, for rare lesions the rate may be stated in cases per million. Incidence data are usually available only if the disease is serious enough, for example malignant neoplasia, to require registration of each case.

Here are just 37 of the 55 ABEL people who help to provide you with the best in practice management systems.

Over 50 great reasons to get DYNA now!

Here's why ABEL's DYNA Dental Practice Management System was rated Number 1 in an independent survey.

First, we have over 50 people who strive to provide you with the best in practice automation systems. Next, we have great features. Then we add great support, and last but not least, great service!

Great Features: DYNA provides the greatest benefits of practice automation — advantages such as: • improved cash flow • reduced operating costs • electronic claims • improved insurance claims accuracy • less clerical effort in preparing claims • easy appointment scheduling • fast preparation of month-end statements • single user or multi-user/multi-tasking systems • integrated accounting available... and much more.

Great Support: With ABEL, you're backed by professionals who share the goal of helping you improve your practice. At ABEL, every customer receives special treatment. A software and computer support package comes with every ABEL system. It includes installation, training, software updates and our outstanding toll-free telephone support.

Great Service: Unlike many others who have come and gone, ABEL continues to improve its software and service. When we say "We'll be here when you need us," we don't take it lightly. Neither should you! ABEL has grown each year since its incorporation in 1977. Our founders still guide the company, ensuring its continuing progress.

Our software team continually works to develop innovative enhancements to DYNA. With ABEL you'll be ready for coming changes in technology. You can be assured your ABEL software will never leave you behind. Call our toll-free number for your nearest ABEL representative.

"We'll be here when you need us."

ABEL

ABEL COMPUTERS LTD.

CALL TOLL-FREE 1-800-263-5104

IBM Business Partner
Authorized Industry Remarketer

U.S.A.
Carborundum Center, 345 Third St.
Niagra Falls, N. Y. 14303

Canada
3310 South Service Rd.
Burlington, Ont. L7N 3M6

TABLE II

Average Annual Incidence of New Cancer Cases in Canada[17] and the U.S.A.[18]

	Total in all sites	% of population affected	Oral* Cancer	Oral Cancer as a % of all Cancer	% of population affected by Oral Cancer
Canada 1985-90	96,580	0.373	2,782	2.881	0.011
U.S.A. 1985-90	973,333	0.397	29,916	3.074	0.012

*In the ICD•9•CM classification, primary malignant osseous neoplasms of the jaws are not included in this category. These are so rare (**Table III**) as to have little effect on the incidence of oral cancer.

Prevalence: This describes the number of all cases of a disease identified within a population in a specified period or point in time.

Relative Frequency: For odontogenic tumors and cysts, registration is not usually required, and therefore incidence and prevalence rates are seldom available. Instead, a measure termed relative frequency is employed. It is derived from data on the cases analysed by general and oral pathology laboratories, and is defined as the proportion that a specific type of lesion comprises relative to the total number of all lesions in a particular collection of biopsies. Relative frequency is not a measure of the frequency of a disease in the general population.

The use of relative frequency can lead to misunderstandings when it comes to the perception of the frequency of occurrence of lesions in a population. For example, osteosarcoma is usually described as the most "common" primary malignant neoplasm of bone, with the exception of the hematopoeitic myeloma. It can be correctly stated to be twice as common as chondrosarcoma and six times as common as fibrosarcoma. However, as primary malignant osseous neoplasms comprise no more than 0.3 per cent of new cancers in all body sites, in epidemiological terms these are rare tumors. Since the term "common" means numerous or abundant, the comparison of the commonness of these rare tumors relative to each other results in a serious loss of perspective. Another example is the statement that describes ameloblastoma as "the most common of the odontogenic tumours." Even though this is true, the perception created is misleading since, on a population basis, it is extremely rare even when compared with rare osteosarcoma.

TABLE III

Average Annual Incidence of New Primary Malignant Osseous Neoplasms in Canada[23] and the U.S.A.[18]

	Total In All Sites	Bone Cancer as a % of all Cancer	% of Population affected by Bone Cancer
Canada 1982-86	305*	0.316	.00122
U.S.A. 1987-91	2,080	0.214	.00084

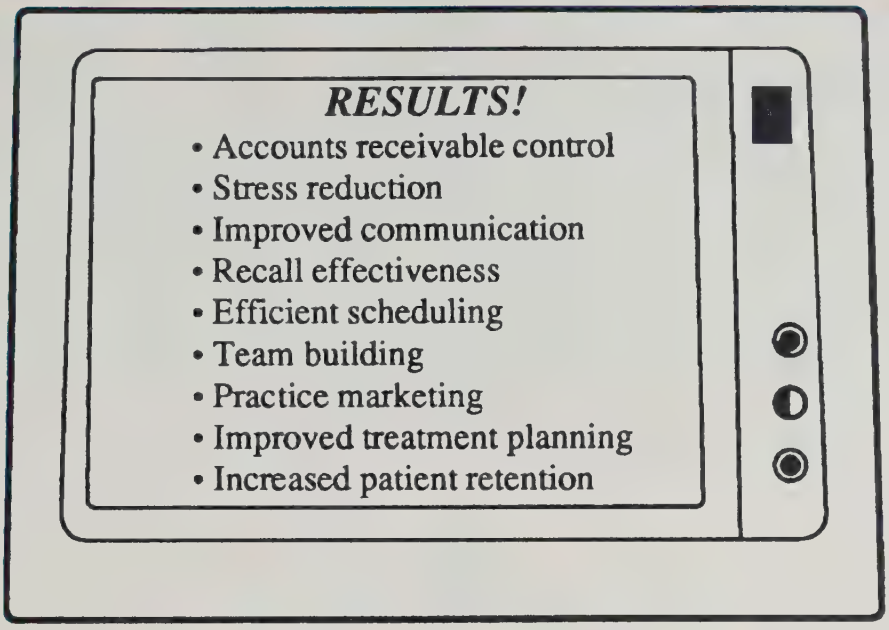
* The numbers for Canada are actual cases; the U.S. numbers are estimates.

Frequency of Occurrence

The incidence of new cancer cases is obtained from registers maintained by cancer societies and government agencies. We will report data from the Canadian[17] and American[18] cancer societies. In addition, we will cite incidence data from three European sources, the Birmingham and West Midlands Regional Cancer Registry in England,[19] the Cancer Registry of Sweden[20] and the Cancer Registry of Denmark.[21] Incidence data are as close to the truth as possible, given the difficulties of collecting health data from large population bases. Neoplasms are classified for registration according to the 9th revision of the International Classification of Diseases, Clinical Modification (ICD•9•CM),[22] by site and cell of origin.

Primary Malignant Bone Neoplasms: The incidence of new cases of bone neoplasms is reported under several site headings. Myeloma, although it produces skeletal as well as other lesions, is reported in blood and lymph tissue sites, reflecting the origin of these neoplasms. As a cancer site, the skeleton is used only to report neoplasia of the bone and cartilage progenitor cells. These are referred to in this paper as primary malignant osseous neoplasms. This site also includes intraosseous carcinoma and odontogenic carcinoma.

In **Table II**, recent totals of all new cancer cases, including oral cancer, in Canada and the U.S. are shown, while **Table III** shows new primary malignant osseous neoplasms. The annual incidence rates are 12/1,000,000 in Canada and 8/1,000,000 in the U.S. There are similar data from Sweden, where a rate of 9/1,000,000 was reported.[20] Excepting only the eye, bone is the organ system that is least affected by cancer. Of dental interest, cancer of the entire skeleton has about one-third the incidence of tongue cancer.[17] The total annual number of new primary malignant osseous neoplasms of the jaws and skull in Canada in recent years is shown



Get Results Now!

Do you want to get results? For more than 15 years, ABEL customers have achieved outstanding results by following the recommendations of our practice management advisors. *So can you!* **For the first 200 practices that respond to this offer, we are offering a *complimentary Practice Analysis Study.***

- We will analyze your needs and potential
- We will provide a report focused on improving your results
- There is no cost to you
- There is no obligation

You'll also learn about the **ABEL Dental Software System,** which can be an important component in achieving your results. Ideal for all sizes of practices, from small to very large, it is rated number one by an independent survey. It provides EDI, easy scheduling, contact management, interactive word processing, insurance claims processing and much, much more. In addition, with ABEL you get unparalleled support and service, 24 hours a day, 7 days a week. We're solid and stable, with more than 50 staff members to support you.

These are among the reasons so many practices start with ABEL, and why others convert to our system. **Before you automate your practice, call ABEL to schedule your complimentary Practice Analysis Study and to learn more about the ABEL Dental Software System.**

Get Results Now! Call toll-free.

1-800-263-5104

ABEL®

Much more than just a computer system.

ABEL Computers Ltd., 3310 South Service Rd., Burlington, Ont. L7N 3M6

Introducing MORE CHOICES,

Canadian Dentists' Insurance Program

New Options for Long Term Disability Insurance

Deferred Income Tax Expense Option

Pays your deferred income tax while you're totally disabled.

Choice of two benefit schedules:

- *Monthly Benefit up to $10,000 per month for one year, or...*
- *Lump Sum Benefit up to $100,000*

Retirement Protection Option

Invests into a non-registered investment vehicle in your name during total disability

- *Benefits of $500 or $1,000 per month for duration of total disability to age 65.*

HIV and Hepatitis B Coverage

Automatic coverage for HIV and Hepatitis B at no extra charge.

Higher limits effective January 1, 1993

- Long Term Disability Insurance up to $12,000 monthly
- Office Overhead Expense up to $20,000 monthly
- Basic Life Insurance up to $1,000,000

New 3-tiered Accidental Death and Dismemberment Plan

Basic coverage

For many accidental injuries that may impair your ability to practice.

Extended coverage

For minor damage to your vision and dominant hand not covered by Basic coverage.

Comprehensive coverage

Covers accidental injuries to the back, neck, head and other injuries beyond the scope of Basic coverage.

New InstApply Service

Filling in your insurance application is quick and easy with assistance over the phone from a Personal Service Representative at CDSPI.

Extended Service Hours

Service for Western provinces to 5 pm Pacific Standard Time.

For more details, call CDSPI TOLL-FREE at

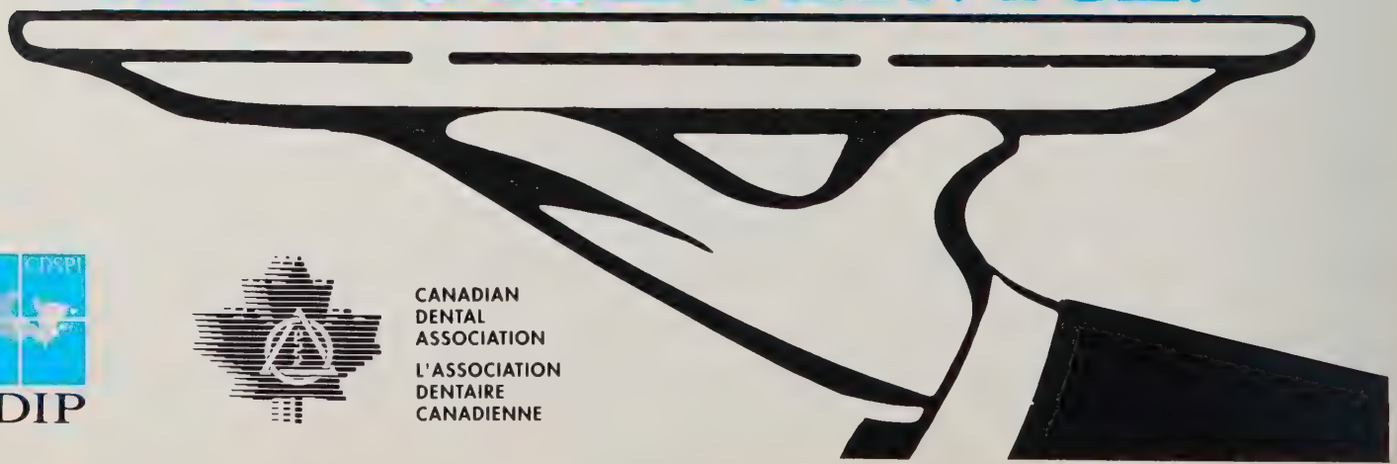
1-800-561-9401

Ext. 236 Western Provinces
Ext. 238 Ontario
Ext. 234 Québec, Maritimes

1-416-296-9401

Metro Toronto

AND MORE SERVICE.



CDIP

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

TABLE IV

New Primary Malignant Osseous Neoplasms of the Jaws and Skull in Canada[23]

Year	Skull incl. Maxilla*	Mandible**	Total	% of all Cancers
1985	27	18	45	.049
1984	27	15	42	.048
1983	27	12	39	.046
1982	23	23	46	.056
1981	27	27	54	.066

Average for 5 years - 45 cases per year

* ICD•9•CM class 170.0 - Bones of skull and face except mandible

** ICD•9•CM class 170.1 - Mandible

in **Table IV**.[23] From these data, the annual incidence rate is calculated at 1.8 cases/1,000,000 persons. Since the ICD•9•CM classification numbers 170.0 and 170.1 include 14 bones of the skull, the incidence for the jaws alone is less than shown. Incidence data from two European registries confirm the Canadian experience. In England,[19] the annual incidence in the head and neck was 2/1,000,000, which is almost identical to the Canadian data. The annual incidence in Denmark for the jaws alone was reported at 1/1,000,000 persons.[21]

Metastatic Jaw Neoplasms: The incidence of jaw metastases is not available from cancer registries, since the ICD•9•CM classification identifies only those metastatic lesions in the skeleton for which the primary site has not been located. Jaw metastases are rarely reported in the dental literature, due to the limited volume of red marrow in older jaws and the infrequency of postmortem radiographic examination of these bones. Clausen and Poulsen[24] reviewed the literature from 1884 to 1961, and found 92 cases. Metastatic lesions constituted .03 per cent of all oral biopsies in the large series reported by Weir et al,[25] compared with 0.23 per cent for mesenchymal malignancies.

Benign Bone Neoplasms: The frequency of bone neoplasms can only be roughly estimated, for unlike malignant neoplasia, their registration is not required. Often, benign lesions are not discovered due to the absence or insignificance of signs or symptoms. Even if diagnosed, because of limited growth potential or even regression, they are frequently monitored rather than surgically removed. In the absence of incidence figures, relative frequency is the only available measure.

Using relative frequency, Dahlin and Unni,[26] and Mirra[27] reported that benign neoplasms accounted for about one-fifth of all biopsied primary tumors. Four neoplasms – osteochondroma, giant cell tumor of epiphysis, chondroma, and osteoid osteoma – comprise over 80 per cent of biopsied benign skeletal neoplasms. Only one of these – osteoid osteoma of the jaws – was reported in the Mayo Clinic series of 8,542 neoplasms.[26] When a neoplasm of this type is diagnosed in the jaws, it should be considered an oddity. Some of the less frequently reported benign skeletal neoplasms do appear in the jaws, although the numbers are insignificant. For example, of the 10 neurilemmoma reported in the Mayo clinic series, the four located in the jaws represented .047 per cent of the total series, while osteosarcoma of the jaws accounted for one per cent.[26]

Odontogenic Neoplasms: As with other neoplasms, the odontogenic types are not registered unless they are malignant. However, there are some incidence data on the ameloblastoma. Shear and Singh[28] reported an annual incidence of 0.3/1,000,000 in the white population of a large district in South Africa. In the black population, the incidence was 2.5/1,000,000. Using data from the Swedish Cancer Registry, Larsson and Almeren[29] calculated the incidence at 0.3/1,000,000. This is consistent with the conclusions of Shear and Singh.

The relative frequency of all the various types of odontogenic neoplasms can be estimated from the large series of biopsies reported by oral pathology laboratories. We have excluded dental tumors, which are hamartomas, dysplasias, inflammatory responses or developmental malformations. Regezi et al[30] reported 168 benign odontogenic neoplasms in the 54,534 biopsies examined between 1935-1975. The 78 ameloblastomas diagnosed constituted slightly less than half of all the odontogenic neoplasms. Minderjahn,[31] in an extensive review of the world literature, reported that the ameloblastoma, although extremely rare, accounted for approximately half of all odontogenic neoplasms.

Cysts in the Jaws: About 74 per cent of cysts in the jaws are inflammatory and arise following pulp death.[32,33] The causative teeth will have a history of trauma, caries, pulpitis, developmental anomaly or often extensive restorative treatment. Occasionally, radicular cysts are discovered fortuitously on screening radiographs, but the signs, symptoms, or history usually will indicate the need for radiography. Therefore, this cyst should not be included as an occult lesion. The relative frequency of all cysts is shown in **Table V**. One study by Shear and Singh[28] reported incidence data for the dentigerous cyst. They found a total of 97 in a white South African population of about one million over a period of 10 years, for an average

TABLE V

Relative Frequency of Cysts of the Jaws[32-34]

Type	Percent*
Radicular	74
Dentigerous	15
Keratocyst	5
Nasopalatine	5
All others**	1

* The percentages shown are approximations from the literature cited.

** Included here are the lateral periodontal, globulo-maxillary, median palatine, median mandibular, simple bone and aneurysmal bone cyst.

annual incidence of 10.5 per million. As with odontogenic tumors, where ameloblastoma is almost equal to the combined occurrence of all other odontogenic neoplasms, among the non-inflammatory cysts, the dentigerous cyst has a frequency slightly greater than the combined frequency of all the others.

Other Osseous Lesions: In addition to neoplasms and cysts, there is a heterogeneous group of bone conditions that includes hamartomas, dysplasias, reactive, and metabolic diseases. While the primary focus of concern in screening radiography is the discovery of neoplasia and cysts, the cumulative frequency of these other bone lesions may be used to support the practice.

Foremost in this group is odontome, a hamartoma which constitutes about two-thirds of the odontogenic tumors. Three-quarters of the odontomes show clinical findings, mostly interference with the eruption of the permanent teeth.[34] Unless they are involved in cystic or ameloblastic change, extremely rare occurrences, the remainder pose little health hazard.

Fibrous dysplasia accounts for 0.8 per cent of all skeletal biopsies,* with 10 per cent of these involving the jaws. The actual incidence is greater than reported because many of these tumors are never discovered and, even if diagnosed, many are not biopsied. Although periapical cemental dysplasia is a silent lesion that is usually included in lists of odontogenic tumors, it has no significance as it does not require treatment.

The histiocytosis X group of diseases includes the extremely rare and usually fatal Letterer-Siwe disease (0.1 per cent of all skeletal biopsies), and the slightly less rare Hand-Schuller-Christian disease (0.3 per cent). A benign member of this group is eosinophilic granuloma, which accounts for about one per cent of skeletal biopsies, of which 0.4 per cent are jaw lesions.

The aneurysmal bone cyst and central giant cell granuloma, although extremely rare, require some comment. While this bone "cyst" accounts for one per cent of all skeletal biopsies, it rarely occurs in the jaws and, if present, there are usually signs and symptoms. Six in the jaws were reported by Dahlin and Unni[26] in the Mayo Clinic files in over 50 years. The central giant cell lesion has received considerable attention because of its disputed origin, as well as its propensity to occur in the jaws. There are no data available to determine incidence. Giansanti and Waldron[35] reported that it approximated 0.1 per cent of their oral biopsy series. By way of comparison, the extremely rare ameloblastoma accounted for a similar relative frequency in similar series.[30]

Lastly, Paget's disease and hyperparathyroidism may produce radiographic jaw changes. However, these diseases are diagnosed by clinical signs, symptoms and biochemical tests. When bone changes are present in the jaws, they usually indicate a late stage of the disease.

Legal Considerations in Practising Prescription Radiography

Beyond their concern for the health of the patient, dentists have expressed an additional concern that failure to disclose occult disease by screening radiography may expose them to litigation.

Since screening radiography in general dental practice is significantly more the rule than the exception, and further, the majority of dental schools in Canada and the United States teach the use of a standard radiographic examination for all comprehensive care patients, what is the legal position of dentists in the event of malpractice actions being brought against them for alleged failures to engage in screening radiography? The issue, perhaps, needs to be somewhat more focused. What would the legal position of dentists be, in respect to a patient-initiated action for malpractice, where it was alleged that a dentist failed to make radiographs, notwithstanding a total absence of any signs or symptoms or any information reasonably obtainable from the dental or medical history?

Over the years, there have been many successful actions brought against dentists who failed to make radiographs when there were clearly discernible signs or symptoms that not only justified radiographs, but, indeed, mandated them. There is, unquestionably, a need for radiography in those instances where only this method can provide information essential to the correct diagnosis and appropriate treatment of a suspected condition. However, in answer to the question posed, we need go no further than the statement of professor (now Madame Justice) Picard: "Where there is no justification for a test, it should not be done."[36]

Picard refers to a case decided by the British Columbia Court of Appeal in which two medical specialists were involved in doing a "package" health program for executives in which one of their patients died from an allergic reaction to the contrast medium used in a pyelogram done as a "routine test."[37] There were no clinical indications for the test.

Cases involving charges of negligence for failing to use radiographs in diagnosing dental conditions do justify the conclusion that a dentist may be held answerable where there is substantial evidence that proper practice required the use of this diagnostic aid, and that, as a result of the failure to obtain the information available through the use of radiographs, the patient suffered an injury that could have been avoided if the dentist had been properly informed. At least one of two factors would have to be established for a complainant to be successful in such an action: 1) that there was a causal connection between the failure to use radiography and the injuries or conditions of which the patient complained; and, 2) that the standards of practice called for the making of radiographs.

The first situation is not applicable, because the patient, in the total absence of signs or symptoms, is not complaining of anything. The main factor is clearly the second one. Do the standards of practice in the 1990s call for screening radiography in the total absence of signs or symptoms or of a non-contributory clinical history? The Supreme Court of Canada, in a judgment in respect of physicians, but applying equally to dentists, stated: "...every medical practitioner must bring to his task a reasonable degree of skill and knowledge and must exercise a reasonable degree of care. He is bound to exercise that degree of care and skill which could reasonably be expected of a normal, prudent practitioner of the same experience and standing..."[38]

One could argue that, as screening radiography is extensively employed in general practice and widely taught in dental schools, even in 1992, the normal, prudent practitioner would be expected to do likewise. That assumption would, in our view, be invalid on at least two counts. The first is the fact that guidelines approved and published by national professional organizations, which endorse the doctrine of the International Commission on Radiologic Protection, clearly have made the screening approach anachronistic. Secondly, the Supreme Court of Canada has said: "The fact that a professional has followed the practice of his or her peers

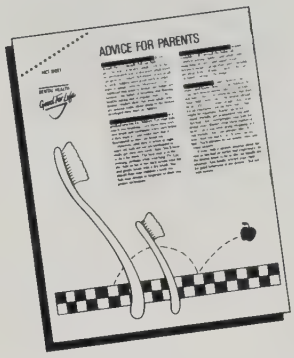
CDA FACT SHEETS

25% Discount for CDA Members

Essential Information at an Exceptional Price

"How do I prevent gum disease?"
"Am I brushing properly?"
"How do I care for my child's teeth?"

Your patients have plenty of questions. CDA's Fact Sheets help you deliver the answers.



This series of 10 fact sheets is a simple, effective, and inexpensive way to provide vital dental health information to your patients. They're factual, to the point, and easy to read. And they deliver essential information in a convenient and lively way.

Each 8 1/2" X 11" fact sheet comes in a handy tear-off pad of 100 sheets. As little as 6¢ per patient!

1. Don't Wait till It Hurts Too many people still treat the dentist like the fire department. They only call if there's an emergency. This fact sheet highlights the importance of regular dental visits. It explains that the dentist can solve small problems before they become big ones, and provide the professional care needed to maintain a healthy mouth.

2. Advice for Parents Even though they eventually fall out, baby teeth pave the way for healthy adult teeth. This fact sheet provides parents with helpful advice on how to care for their children's teeth. Tips include brushing techniques, sensible snacks, and how to prepare for a child's first dental visit.

3. Changing Your Dental Habits Old habits die hard! – and they can seriously compromise your patients' dental health. Brushing too fast, rarely flossing, and eating the wrong kinds of foods are the most common bad dental health habits. This fact sheet provides helpful tips on how to change them.

4. Managing a Sweet Tooth A dental health quiz on sugar! Can your patients answer it correctly? Everyone knows that sugary foods can be harmful to your dental health. The surprise is that the kind of sugar you eat and when you eat it is crucial to maintaining good dental health.

5. Facts about Dental Health Hardhitting facts about dental health. Topics covered include: the prevalence of dental disease, its consequences and how to prevent it, the benefits of fluoride, and dentalphobia.

6. Tips for Tooth Troubles If your patients know what to do in a dental emergency, it can save them anguish and permanent damage.This fact sheet discusses some of the most common dental emergencies and how to handle them.

See sample reverse side.

7. How to Talk to Your Dentist Here's a vital message for your patients: Don't just sit there, speak up. This fact sheet aims to make patient/dentist communication easier. It provides patients with questions they can ask about their own dental health. From general dental health queries to interests in cosmetic procedures to dental anxiety – it tells patients that the dentist is ready and willing to provide advice.

8. Gum Disease: Why Your Teeth Need Support Nine out of every ten Canadians will develop gum disease at one point in their adult lives. And most adult Canadians don't know anything about it! Vital information about gum disease — how it happens, warning signs, and preventive tips — is presented in a straightforward, easy-to-understand manner.

9. Growing up: How Your Dental Needs Change This fact sheet discusses the dental health issues that affect people at each stage of life, from toddlers to adults to everyone in between. Your patients will find information explaining what they should be aware of now and in the future.

10. How to Choose a Dentist It's worth spending time to find the right dentist. This fact sheet provides a few suggestions to help patients find and evaluate a dentist.

CDA Member Price $5.98 Regular Price $7.98

Order yours today!
Call the CDA toll-free at 1-800-267-6354.
Or complete and mail the order form below.

CDA PRODUCTS
The Right Stuff . . . Right Now.

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

Complete and mail to: The Canadian Dental Association, Order Section, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

Name _____
Address _____
City/Town _____ Province _____
Postal Code _____ Telephone ( ) _____
CDA Membership # _____
Cheque/Money Order Enclosed ☐ Visa ☐ MasterCard ☐
Credit Card # _____
Expiry Date _____
Signature _____

Item (Pads of 100 Sheets)	Quantity
1. Don't Wait till It Hurts	
2. Advice for Parents	
3. Changing Your Dental Habits	
4. Managing a Sweet Tooth	
5. Facts about Dental Health	
6. Tips for Tooth Troubles	
7. How to Talk to Your Dentist	
8. Gum Disease: Why Your Teeth Need Support	
9. Growing up: How Your Dental Needs Change	
10. How to Choose a Dentist	

Fact Sheets Pads:
Cost: _____ pad(s) X price /pad
Member Price: $5.98/pad of 100 sheets
Regular Price: $7.98/pad of 100 sheets

Total Order	$
Shipping	$
Subtotal (Total Order + Shipping)	$
Add 7% GST (#R106845209) to Subtotal	$
Ontario Residents add 8% PST to Subtotal	$
Grand Total	$

Shipping and handling: All orders will be sent by mail with prepaid shipping charges as follows: Orders under $30.00=$4.50; $30.00 to $99.99=$7.00; $100.00 to $250.00=$11.50; over $250.00 call our toll-free number for applicable charges. Allow 4 – 6 weeks for delivery. Make cheque or money order payable to: Canadian Dental Association. Payment must accompany order.

Naturally, there's something in it for your patients.

When people started brushing with baking soda over 100 years ago, it was for its cleaning and deodorizing qualities.

Now Colgate has developed a new formula that combines these natural benefits with proven fluoride protection.

Colgate* Toothpaste With Baking Soda.

With its gentle abrasion, our new formula has proven effective against supragingival plaque. And because of its alkalinity, it also helps neutralize plaque acid.†

Recent comparison studies have shown that baking soda alone is at least as gentle on enamel and exposed dentin as other abrasives in the major toothpastes studied.†

What's more, Colgate ground the baking soda in its new toothpaste to pharmaceutical grade—considerably finer than the version used in the comparison test.

All this to ensure that our new toothpaste is a safe and effective way to clean and protect your patients' teeth. We've even given it a natural mint flavour, so there's no uncertainty about taste.

New Colgate Toothpaste With Baking Soda. Your patients will be glad to know there's something in it for them.

*TM Reg'd COLGATE-PALMOLIVE CANADA INC.

†References available on request.

may be strong evidence of reasonable and diligent conduct, but it is not determinative."[39] The winning counsel, in a comment made following the release of the court's decision, observed that the judgment is "a warning to all professionals that they must take a critical view of their professional practices. A widespread, generally-accepted practice will not insulate the professional."[40]

Discussion

Screening radiography is justified by its proponents on the premise that even though the patient exhibits no signs or symptoms, occult disease in the jaws may go undetected if radiography is limited to sites indicated by selection criteria. The fear of overlooking serious lesions seems to be one of the main reasons that prescription radiography is not widely accepted by both academics and general practitioners.

Before initiating any screening program, epidemiologists have described several important factors that must be considered.[41] Among these are: 1) The condition sought should be an important public health problem; 2) there should be a recognizable latent or early symptomatic stage; 3) the test should be acceptable to the population; 4) the cost of case finding, including diagnosis and treatment of the patients diagnosed, should be economically balanced in relation to possible expenditures on medical care as a whole; and, 5) case finding should be a continuing process and not a one-time project.

It would appear at first glance that screening radiography for occult diseases possesses many of the requirements of a good screening program. For example, in North America, facilities are available for diagnosis and treatment. Also, radiographs are well accepted by the population, certainly compared to procedures that are either painful, invasive, involve hospital admission or the collection of body fluids. In medicine, however, only mammography meets the criteria for a radiographic screening program, even though some aspects of this are controversial. The annual incidence of breast cancer is approximately 100/100,000 females, and it is both age-related** and site-specific.[17] In comparison, primary malignant osseous tumors of the skull and jaws have an annual incidence of 0.18/100,000, which is about 550 times less frequent than breast cancer. Further, primary bone cancer is approximately 20 times more frequent in the rest of the skeleton than in the jaws, with a predilection for the long bones, ribs and vertebrae.[26] If screening by radiography for new bone cancer were contemplated, which it is not, then jaw films would have a very low priority indeed, as the mathematical chance of discovering a lesion by screening radiography is extremely small.

Since the concept of survey radiography is predicated on the search for occult disease, the question of whether malignant osseous neoplasms of the jaws are in fact silent lesions must be addressed. According to Dahlin and Unni,[26] and to Mirra,[27] the cardinal features of bone cancer are pain, swelling and disability. Dahlin and Unni observed that these non-specific features "serve mainly as a guide to the correct site for roentgenographic studies and for biopsy."[42] Mirra has stated further that a "lesion with neither mass nor pain, i.e. an incidental or occult lesion, is benign in 95-98 per cent of cases."[43] The inescapable conclusion must be that the probability of an incidental finding of an occult malignant lesion by a dental radiographic survey is infinitesimal. Objections may be raised about our omission of lymphoma, especially multiple myeloma, from the data on primary bone malignancy. Myeloma are tumors of blood-forming cells that occur overwhelmingly in older men, and as is the case with metastatic carcinoma, predominate in those parts of the skeleton with red marrow. This accounts for the infrequency of lesions reported in the jaws.[25,26] Myeloma cells disseminate widely to many tissues and organs beyond the skeleton, causing a variety of constitutional signs and symptoms. Medical diagnosis is made principally by hematology, initiated by the clinical signs, with confirming radiographic evidence. These diseases are most unlikely to be discovered fortuitously in an asymptomatic patient by dental radiography.

Apart from missing a malignant bone lesion, there is a concern of overlooking an odontogenic neoplasm or cyst if only diagnostic films are taken. The principal odontogenic neoplasm, ameloblastoma, has an average annual incidence of .03/100,000. All of the other odontogenic neoplasms combined have a frequency about equal to that of ameloblastoma. Thus, the entire group is three times less frequent than the rare primary malignant osseous neoplasms of the jaws and skull. Considering that odontogenic tumors affect only .00006 per cent of the population, a recommendation for survey radiography to disclose these extremely rare lesions cannot be seriously regarded as a legitimate public health measure.

From the available data, we estimate that non-inflammatory cysts have an annual incidence of 2/100,000 persons. Since some will present with signs and symptoms of pain or swelling, and as all dentigerous cysts arise from unerupted teeth, only a relatively small proportion could be described as occult lesions. When the low incidence is qualified by the ofttimes presence of clinical indications, the use of screening radiography could not possibly be justified.

With the exception of the odontomes, most of which show clinical evidence of their presence, the heterogeneous collection of other osseous lesions does not add significantly to the mathematical chance of incidental discovery. Some, such as Paget's, hyperparathyroidism and histiocytosis X, are almost always medically diagnosed. Many of the dysplasias are self-limiting and are neither treated nor reported. None of this collection appears in lists of commonly diagnosed jaw lesions.[25,44]

It could be argued that although, taken individually, the incidence of tumors, cysts and other osseous lesions is insignificant, taken collectively it would reach a frequency that would justify screening radiography. While a generous calculation for all the lesions discussed might give an incidence of three to four per 100,000, this number would contain only a very small proportion of occult lesions. Even this extremely small number must be modified by the predilection of such lesions to occur in certain age periods. In the first two decades, lesions such as histiocytosis X, fibrous dysplasia, the odontomes and giant cell granuloma will occur. In the third and fourth decades, sarcoma, ameloblastoma and dentigerous cyst are most often diagnosed. Paget's, multiple myeloma and metastatic carcinoma are diseases of older persons, principally found in the sixth and seventh decades. Thus the lesions of concern are spread over an entire lifespan. Since, collectively, these lesions are not age clustered, and as the malignant bone lesions are located predominantly in skeletal sites other than the jaws, the probability of discovery by screening radiography remains infinitesimal.

Another contention used to justify screening radiography is that the films provide "baseline information," i.e. negative radiographic findings, which can be used to assure patients of good

oral health. The question then arises: "When is the appropriate time for the initial or baseline survey?" Currently, the timing is governed mostly by chance, that is the age at which the new patient seeks an appointment. Since the probability of finding occult disease on any occasion is virtually nil, the initial survey must primarily serve to assure the patient that bone disease is not present. In our view, this assumption is inappropriate, for the absence of radiographic evidence of disease does not mean the absence of disease in bone. Disease that was initiated days, weeks or even months before the survey may not have caused sufficient alterations in the bone to produce an abnormal image. Disease which begins in the days, weeks or months after the baseline survey would require a program of periodic radiography if lesions were to be disclosed prior to the emergence of signs or symptoms. The appropriate interval for such radiographs has never been defined, and their use has been discouraged by all professional organizations on the basis of cost, radiation risk and unproven efficacy.[2] As well, if baseline radiography were considered to be the legal requirement to meet the standards of practice, then, as it would be applicable to all health care services, a physical examination of an asymptomatic patient would necessitate full body radiography and every non-duplicatory diagnostic test known to dental/medical science.

There is a further assumption held by those who teach the concept of an initial radiographic survey, and that is a belief in the efficiency of the method in disclosing serious bone disease. Although, according to Zeichner et al,[45] the accuracy of radiographs is reasonably good, there is a significant possibility of reporting either false negatives, i.e. overlooking disease, or false positives, i.e. disease where none exists. When using this test to disclose serious disease, these outcomes reduce the efficiency of the method. In economic terms, Zeichner et al estimated that the detection of each malignancy by radiographs would cost $8.6 million (U.S.), and, further, from the dosimetric literature, that "the potential benefit of detecting an intraosseous malignancy is counterbalanced by the risk of causing a radiation-induced malignancy."[45]

It is apparent that survey radiography of the jaws does not possess many of the qualities of a good screening test. Moreover, the criteria that are not met tend to be the most important ones. Specifically, occult diseases likely to be detected by routine radiographs are not an important public health problem, given their exceedingly small incidence. The hazards of screening for very rare disorders are well known, particularly the likelihood of false positive diagnoses, which occur even in tests of high predictive accuracy. Most important, however, is the failure of screening radiography to pass the test of cost effectiveness, or of possessing a favorable risk-benefit ratio. Thus, it is almost a certainty that routine radiography for occult jaw diseases would not be adopted as a new program if it were proposed today.

The concept of routine initial radiographic surveys for all new comprehensive care patients was accepted in the 1950s in the well-intentioned belief that the dentist, through the use of screening radiographs, could play an important role in the early diagnosis of diseases beyond those of common dental origin. A scientific rationale based on the incidence of such diseases in the jaws and the efficacy of the initial or periodic survey to disclose them has never been demonstrated. The dental literature is virtually devoid of studies that indicate a useful yield of serious occult lesions by such means.[46,47] Since the dental radiograph exceeds any other type of radiograph in terms of the number of patients and films exposed, our medical colleagues, consumer groups and a growing number of patients view this practise with concern, if not suspicion. The time is overdue for the academic community to either support its current practices with scientific evidence, or accept and promote the concept of prescription radiography. Radiographs should not be used in an elusive search for occult disease. Nor should the expected failure to find such disease by a radiographic survey be converted into a positive benefit for assuring a clinically-normal patient that bone disease is not present. Radiography should be restored to its role as an essential diagnostic method when indicated by clinical examination.

Inseparable from the practice of dentistry, and not under the control of practitioners, is the possibility that patients, however invalid their allegations, may institute legal actions against their dentists for perceived acts of omission or commission. The issue, of course, is not whether a dentist may be sued, but whether such initiative has any reasonable chance of succeeding. It is our view that, in 1992, the likelihood of encountering legal difficulties as a result of exposing patients to screening radiographic examination – in the absence of signs, symptoms, or a negative clinical history – is significantly greater than in adhering to the professionally supported doctrine of the ICRP.

Here we must comment on the widely-held misconception that radiation protection measures imply arbitrary limits on film numbers through slavish adherence to guidelines, when, in fact, the primary goal is the elimination of unproductive radiation. Further, we would emphasize that much of the successful malpractice litigation stems from not making enough radiographs when indicated for diagnosis and treatment.

Finally, we suggest that there is a need to reassess the undergraduate curricular presentation of the subject of neoplasia and other serious diseases that may be manifest in the jaws. As Weir et al[25] observed, "Frequently, the dentist is unable to narrow the diagnostic focus because of an unawareness of which particular lesions occur more commonly and which lesions are rarely seen." Some of the time spent on the study of rare conditions could better be devoted to the epidemiology, natural history and clinical recognition of frequently encountered oral disease.

* *The percentages shown for fibrous dysplasia, histiocytosis X and the aneurysmal bone cyst are relative frequencies taken from the large biopsy series reported by Mirra.*[27] *For perspective, it should be noted that the relative frequency of osteosarcoma was 15 per cent of all skeletal biopsies.*

***For women over the age of 45, the incidence is much higher than the population data shown.*

Dr. Stephens *is a professor emeritus with the division of oral medicine and radiology at the University of Western Ontario, London, Ontario N6A 5C1.*

Dr. Kogon *is the chairman of the division of oral medicine and radiology, and a professor at the University of Western Ontario.*

Dr. Speechley *is an assistant professor in the department of epidemiology and biostatistics, faculty of medicine, and of the division of community dentistry, at the University of Western Ontario.*

Dr. Dunn *is a professor emeritus with the division of community dentistry at the University of Western Ontario.*

Reprint requests to **Dr. Stephens**.

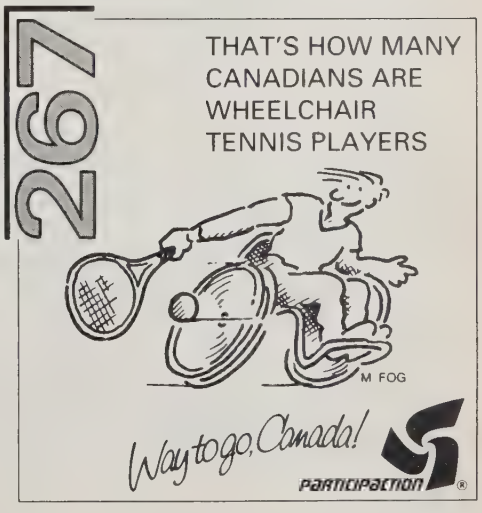
References

1. Safety Code-22. Radiation protection in dental practice. Environmental Health Direc-

torate, Health Protection Branch, Health and Welfare, Canada, 80-EHD-66, 1981.
2. Center for Devices and Radiological Health. The selection of patients for X-ray examinations: dental radiographic examinations. HHS Publication FDA 88-8273, 1987.
3. Guidelines for the control of radiation. *J Canad Dent Assoc* 55:524, 1989.
4. Council on Dental Materials, Instruments and Equipment. Recommendations in radiographic practices: an update, 1988. *JADA* 118:115-117, 1989.
5. Ministry of Health, Ontario. The healing arts radiation protection guidelines, p. 203, 1987.
6. Annals of the ICRP, Publication 33. Protection against ionizing radiation from external sources used in medicine. Oxford, Pergamon Press 9:6-7, 1982.
7. Kantor, M.L. Radiographic examination of comprehensive care patients in U.S. and Canadian dental schools. *Oral Surg Oral Med Oral Pathol* 65:778-781, 1988.
8. Kerr, D.A., Ash, M.M. and Millard, H.D. *Oral diagnosis*. ed. 6, Mosby, St. Louis, MO. p. 239. 1983.
9. Kantor, M.L. Personal communication, 1991.
10. NCHCT Technology Assessment Forum on Dental Radiology. HHS Publication, FDA 82-8197, Aug. 1982.
11. Matteson, S.R., Morrison, W.S. et al. A survey of radiographs obtained at the initial dental examination and patient selection criteria for bitewings at recall. *JADA* 107:586-590, 1983.
12. Kaugars, G.E., Broga, D.W. and Collett, W.K. Dental radiologic survey of Virginia and Florida. *Oral Surg Oral Med Oral Path* 60:225-229, 1985.
13. Kogon, S.L. and Stephens, R.G. Selective radiography instead of screening pantomography - a risk/benefit analysis. *J Canad Dent Assoc* 48:271-275, 1982.
14. White, S.C., Forsythe, A.B. and Joseph, L.P. Patient-selection criteria for panoramic radiography. *Oral Surg Oral Med Oral Path* 57:681-690, 1984.
15. Brooks, S.L. A study of selection criteria for intraoral dental radiography. *Oral Surg Oral Med Oral Path* 62:234-239, 1986.
16. Kogon, S.L., Charles, D.H. and Stephens, R.G. A clinical study of radiographic selection criteria for edentulous patients. *J Canad Dent Assoc* 57:794-798, 1991.
17. National Cancer Institute of Canada, Canadian Cancer Statistics, Toronto, Canada. 1982-90.
18. American Cancer Society, Cancer Facts and Figures, New York, N.Y., 1985-91.
19. Rhys Evans, P.H., Robin, P.E. and Fielding, J.W.L. Head and neck cancer. Tunbridge Wells, Kent, Castle House Publications, p. 5-6, 1983.
20. Larsson, S. and Lorentzen, R. The incidence of malignant primary bone tumors. *J Bone and Joint Surg* 56B:534-540, 1974.
21. Pindborg, J.J. The incidence rate of jaw sarcomas in Denmark, 1943 to 1953. *Oral Surg Oral Med Oral Path* 14:276-279, 1961.
22. ICD•9•CM. ed. 3, U.S. Department of Health and Human Services, Publication No. (PHS) 89-1260, 1989.
23. Cancer in Canada, Canadian Center for Health Information, Statistics Canada, Ottawa, 1981-85.
24. Clausen, F. and Poulsen, H. Metastatic carcinoma to the jaws. *Acta Pathol Microbiol Scand* 57:361-374, 1963.
25. Weir, J.C., Davenport, W.D. and Skinner, R.L. A diagnostic and epidemiologic survey of 15,783 oral lesions. *JADA* 115:439-441, 1987.
26. Dahlin, D.C. and Unni, K.K. *Bone tumors*. ed. 4, Springfield, Illinois, Thomas 1986.
27. Mirra, J.M. *Bone tumors*, Lea and Febiger, Philadelphia Vols. 1,2, 1989.
28. Shear, M. and Singh, S. Age-standardized incidence rates of ameloblastoma and dentigerous cyst on the Witwatersand, South Africa. *Comm Dent Oral Epidemiol* 6:195-199, 1978.
29. Larsson, A. and Almeren, H. Ameloblastoma of the jaws. *Acta Path Microbiol Scand*. Sect. A, 86:337-349, 1978.
30. Regezi, J.A., Kerr, D.A. and Courtney, R.M. Odontogenic tumors: analysis of 706 cases. *J Oral Surg* 36:771-778, 1978.
31. Minderjahn, A. Incidence and clinical differentiation of odontogenic tumors. *J Maxfac Surg* 7:142-150, 1979.
32. Cabrini, R.L., Barros, R.E. and Albans, H. Cysts of the jaws: a statistical analysis. *J Oral Surg* 28:485-490, 1970.
33. Ahlfors, E., Larsson, A. and Sjogren, S. The odontogenic keratocyst: a benign cystic tumor. *J Oral Maxillofac Surg* 42:10-19, 1984.
34. Budnick, S.D. Compound and complex odontomes. *Oral Surg Oral Med Oral Path* 42:501-506, 1976.
35. Giansanti, J.S. and Waldron, C.A. Peripheral giant cell granuloma: a review of 720 cases. *J Oral Surg* 27:787-791, 1969.
36. Picard, E.I. *Legal liability of doctors and hospitals in Canada*. ed. 2, Carswell, Toronto, p. 210, 1984.
37. Leonard v. Knott [1980] I.W.W.R. 673, BCCA.
38. Crits v. Sylvester [1956] O.R. 132 at 143, Aff'd [1956] S.C.R. 991.
39. Roberge v. Bolduc [1991] I.S.C.R. 374.
40. Cited in Dunn, W.J. A new dimension of negligence. *J Canad Dent Assoc 57:434, 1991.*
41. Mausner, J.S. and Kramer, S. *Epidemiology-an introductory text*. ed. 2, Saunders, Philadelphia, 1985.
42. Dahlin, D.C. and Unni, K.K. *Bone tumors*. ed. 4, Springfield, Illinois, Thomas, p. 4, 1986.
43. Mirra, J.M. *Bone tumors*. Lea and Febiger, Philadelphia Vols. 1-2:127, 1989.
44. Bhaskar, S.N. Oral pathology in the dental office: survey of 20,575 biopsy specimens. *JADA* 76:761-766, 1968.
45. Zeichner, S.J., Ruttiman, U.E. and Webber, R.L. Dental radiography: efficacy in the assessment of intraosseous lesions of the face and jaws in asymptomatic patients. *Radiol* 162:691-695, 1987.
46. Stephens, R.G., Kogon, S.L. and Reid, J.A. Prescription radiography. *J Canad Dent Assoc* 51:672-679, 1985.
47. Kantor, M.L., Zeichner, S.J., Valachovic, R.W. and Reiskin, A.B. Efficacy of dental radiographic practices. *JADA* 119:259-268, 1989.

ADVERTISERS' INDEX

Abel Computers 827, 829
A Dec 795
Ash Temple 772
Belmont Takara 805
Bisco Dental 839
Block Drugs 790
CDA Access 844
CDA DIS 789
CDA Leasing 811
CDA Membership 782
CDA Merchandise 833
CDAnet 796
CDA RSP 803
CDSPI 830
Clinical Research Dental 819
Colgate Palmolive 834
Dentsply ..... IFC
ESPE Premier Dental 816
Goodman & Carr 780
Mass. Dental Society 809
3M Canada 785
McNeil 824, 852
Mercedes Benz 778
Noblepharma 798
Oral B ..... IBC
Riker Canada 776, 823
TBI 813
Warner Lambert ..... OBC



Dental management of anticoagulated patients

M.M. Carr, B.Sc., DDS, MD
R.B. Mason, BA Sc., P. Eng., MD
Toronto

ABSTRACT

Today's trend toward ambulatory medical care will bring more pharmacological problems into the dental office. While the dental management of patients taking oral anticoagulants is controversial, current research supports the contention that they can be safely treated on an outpatient basis. The use of the International Normalized Ratio (INR) has made better estimates of prothrombin time possible, and patients can be maintained in a narrow therapeutic range. Postoperative hemorrhage can be avoided or controlled with local hemostatic agents.

SOMMAIRE

Comme la médecine offre de plus en plus des traitements ambulatoires aujourd'hui, les dentistes sont susceptibles d'avoir plus de problèmes d'ordre pharmacologique. Bien que la gestion dentaire des patients prenant des anticoagulants par voie orale prête à controverse, les recherches actuelles appuient ceux qui affirment qu'on peut les traiter sans danger comme patients externes. Grâce à l'index normalisé international, on peut mieux calculer le temps de prothrombine et on peut garder les patients dans une zone thérapeutique restreinte. On peut également éviter ou juguler les hémorragies postopératoires avec des hémostats locaux.

Introduction

As our population ages, the medical profession will probably manage all but the most serious diseases on an outpatient basis. In turn, dentists may find themselves treating elderly people who are undergoing a wide range of pharmacological therapies. Patients taking oral anticoagulants will be included in this group, and they will often have misguided ideas about the effect these medications can have on dental treatment.

If they are well monitored and carefully managed, the majority of anticoagulated outpatients can be treated in the general dentist's office. This paper will examine the use of oral and parenteral anticoagulants in outpatients and their dental management.

The Problem

Mr. H., a 68-year-old man, had neglected his dental care for many years. Mr. H.'s wife was one of your patients, and she finally persuaded him to visit your office for a dental assessment.

Although he was slightly anxious, Mr. H. was pleasant and you were able to gain his confidence through a deliberate, careful examination and a thorough discussion of his dental problems. These included severe periodontitis, which necessitated several extractions. Other teeth had carious lesions at the cementoenamel junctions, and there were one or two occlusal and interproximal lesions. A partial denture was in place, but it was loose and would require modification subsequent to the extractions.

In a routine medical questionnaire, Mr. H. revealed that he had been hospitalized, recently, as the result of a fractured hip. A deep venous thrombosis was diagnosed postoperatively, and a 10 mg daily dose of coumadin was prescribed. In addition, Mr. H. made weekly visits to a local medical laboratory for blood tests. However, he claimed to be fully recovered from his illness, and had no history of myocardial infarction or heart murmur.

The question is: can you, as a general dental practitioner, manage this patient safely?

Normal Hemostasis

The biochemical mechanism that results in coagulation has been extensively researched (details can be found in many textbooks).[1] Hemostasis involves a vascular, a platelet and a coagulation phase. The vascular phase involves immediate local vasoconstriction, rerouting of blood around the area of injury, and activation of both platelets and the extrinsic and intrinsic coagulation systems.[1] The platelet phase denotes adherence of platelets to the

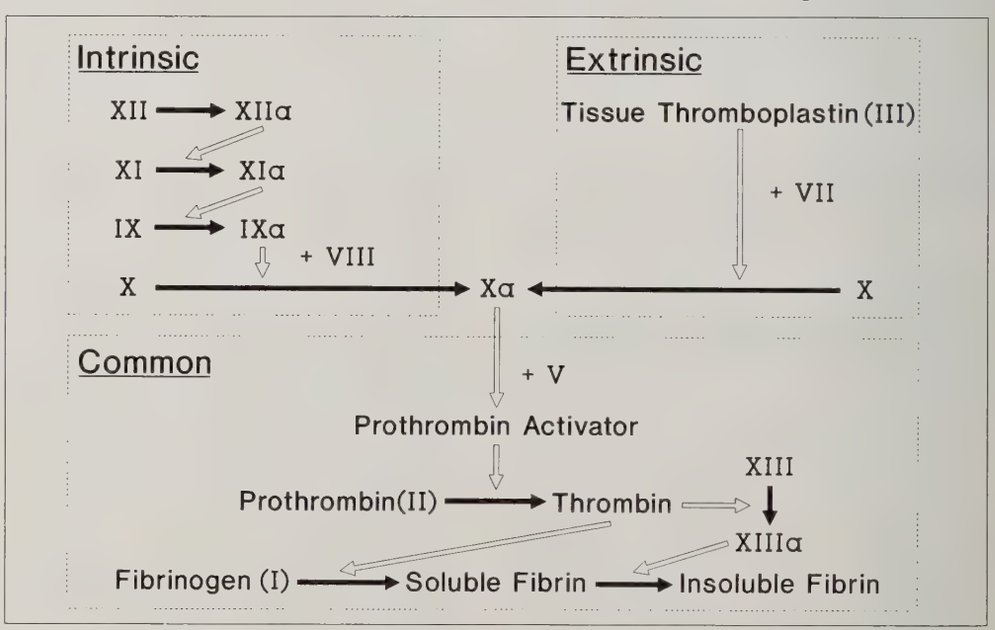


Fig. 1: Coagulation Phase of Hemostasis

BISCO

INTRODUCES

THE 4TH GENERATION

UNIVERSAL ADHESIVE SYSTEM

FEATURING UNIQUE WET (MOIST)* BONDING

ALL-BOND® 2 DUAL CURABLE

ONE BONDING SYSTEM FOR ALL YOUR BONDING NEEDS

The ALL-BOND®2 system bonds to **dentin, enamel, metal** (precious and non-precious) **composite,** and **amalgam**

- Easy to follow instruction cards for all techniques
- Compatible with all composite brands
- Root desensitizing

*WET OR (MOIST) DOES NOT MEAN SALIVA CONTAMINATION

ALL-BOND®

OPAQUER/C&B

Companion kit for metal bonding, crown and bridge cementation

- Five shades of opaquer to attain all Vita Shades

ALSO AVAILABLE

ALL-BOND®

LINER-F

- Fluoride releasing
- Dual curable filled resin
- Amalgam bonding

BISCO THE SOURCE FOR COMPOSITE & ADHESIVE TECHNOLOGY

BISCO

Bisco Dental Products (Canada) Inc.
101-11500 Bridgeport Road
Richmond, B.C. V6X 1T2 1-604-276-8662
1-800-667-8811 (British Columbia, Alberta, Saskatchewan, Manitoba, Quebec)

Clinical Research Dental Supplies and Services Inc.
P.O. Box 28040
London, Ontario
N6H 5E1
1-800-265-3444 (Ontario)

exposed subendothelial collagen of injured vessels and the release of several factors. These include, serotonin and other vasoconstrictors, which act to slow blood flow, ADP, which promotes further platelet aggregation, and tissue thromboplastin which initiates the extrinsic pathway of the coagulation system.[1] The coagulation phase consists of the intrinsic, extrinsic, and common pathways, as shown in **Fig. 1**.

Indications for Anticoagulation

Anticoagulant therapy is used to reduce intravascular thrombosis and the morbidity and mortality associated with this phenomenon. Some of the indications for anticoagulants include: venous thromboembolic disease, post myocardial infarction, atrial fibrillation, valvular heart disease, and mechanical heart valves (**Table I**).[1-7]

Anticoagulants and their Mechanisms of Action

1. Oral Anticoagulants (Coumadin)

Oral anticoagulants antagonize vitamin K, which is necessary for the synthesis of factors II, VII, IX, and X (**Fig. 1**).[1] Post-translational carboxylation of glutamic acid residues (found at sites toward the N-terminal of the vitamin K dependent factors) is inhibited, which causes the action of these factors to be diminished.[3] Drug action is delayed until the plasma stores of the Vitamin K-dependent factors are depleted,[8] and 24 hours are required for therapeutic effect.[4] Antidotes are vitamin K (which requires up to 24 hours for effect) and fresh frozen plasma.[4] These oral anticoagulants are used for long-term therapy.[8] The drug forms a loose bond with albumin in the plasma and is metabolized in the liver.[9] Bleeding, ranging from simple bruising to intracranial hemorrhage, is the most common side effect of oral anticoagulants,[2,10] but skin necrosis may also occur.[1]

2. Parenteral Anticoagulants (Heparin)

Heparin is prescribed for short-term therapy, as using the drug for periods of more than six months may induce osteoporosis.[8] Its effect is short lived and immediate. A strongly negatively-charged sulphated mucopolysaccharide, heparin consists of alternating glucosamine and glucuronic acid residues.[8] It is produced endogenously by mast cells, but has no anticoagulant activity when it is produced in this manner.[9] The drug exerts its effect by binding the lysine residue of antithrombin III and then irreversibly combining with thrombin and inactivating it.[1,12] As a result, thrombin cannot cleave with fibrinogen to form fibrin.[1,12] In addition, heparin has an antithromboplastin effect and prevents the enzymatic conversion of prothrombin to thrombin.[8,9] It also removes factors IX, X, XI, and XII from the plasma, thereby further retarding the coagulation process.[1]

Heparin can be cleared from the blood in six hours,[12] or immediately reversed milligram for milligram with protamine sulphate, a molecule with a strong positive charge.[8,9,12,13] Given in excess, however, protamine also has an anticoagulant effect, as it interferes with the action between thrombin and fibrinogen.[9]

3. Anti-Aggregants (Acetyl Salicylic Acid and others)

Even a single, low dose of acetyl salicylic acid (ASA) or another non-steroidal anti-inflammatory agent can significantly prolong bleeding time.[14-16] This effect occurs within hours of ASA ingestion,[18] and is alleviated by platelet renewal four to seven days later.[16] The mechanism of action involves permanently acetylating cyclo-oxygenase, the platelet membrane enzyme fatty acid, thereby preventing the conversion of arachidonic acid to prostaglandins and thromboxanes.[17] Platelet adhesion, ADP release and aggregation are inhibited.[16] ASA also impairs platelet glucose transport and diminishes glycolysis, thereby reducing intracellular ATP.[20] Patients at high risk of bleeding when using ASA include those undergoing surgery (including dental extractions) or anticoagulant therapy, and those whose platelets are more sensitive to ASA than normal or who have an intrinsic hematological defect.[16]

Other novel anti-aggregants include ticlopidine and persantine, which may be used alone or in combination with ASA. Ticlopidine is a thienopyridine derivative with a broad spectrum of anti-aggregating activity.[21] Anti-aggregant effects are noted at 24 to 48 hours, with a maximal effect on bleeding time at three to five days.[21] Significant anti-platelet activity may persist for more

TABLE I

Possible Indications for Anticoagulation[1-6]

Vessel Disorders
- Thrombophlebitis
- Venous Thrombosis
- Pulmonary embolism
- Cerebrovascular Disease
- Cerebrovascular Disease - ie: TIA, stroke

Cardiac Disorders
- Valvular - mitral stenosis, rheumatic heart disease, prosthetic valves, mitral valve prolapse
- Muscular - Cardiomyopathy, aneurysm
- Conductive - atrial fibrillation, sick sinus syndrome
- Cardiac Vessel - post-myocardial infarction

Iatrogenic
- Post-embolectomy
- Post-endarterectomy
- Post-surgical - prophylactically for immobile patient

Relative contraindications to Anticoagulation [7]
- Active bleeding - trauma
- Bleeding tendencies - hemophilia, active peptic ulcer disease
- Severe hypertension
- Cerebrovascular hemorrhage
- Recent surgery or invasive procedures - lumbar puncture
- Pregnancy - primarily coumadin
- Inadequate laboratory facilities
- Unsatisfactory patient compliance

than 72 hours, with a return to baseline after four to 10 days.[21] Ticlopidine works by decreasing ADP release, thereby inhibiting the ADP-induced exposure of the fibrinogen-binding site, activating adenyl cyclase and decreasing intracellular calcium levels.[21]

Persantine, or dipyridamole, also impairs the platelet reaction, through an incompletely understood mechanism.[22] It has been repeatedly demonstrated that dipyridamole inhibits platelet adhesion to the subendothelial vessel structures and to foreign prosthetic materials.[22] Dipyridamole inhibits phosphodiesterase thereby increasing cAMP, decreasing free calcium, and inhibiting the contractile protein thrombosthenin, necessary for the release reaction. In addition, dipyridamole decreases adenosine uptake and degradation, and potentiates the effects of prostacyclin through phosphodiesterase blockade. Adenosine and prostacyclin are potent inhibitors of platelet aggregation.[22]

Lab Tests

Oral anticoagulants are usually monitored via prothrombin time (PT), a test of extrinsic pathway function.[12] It consists of adding thromboplastin and calcium ions to the patient's plasma. If factors X, VII or prothrombin are deficient, the patient's PT will be longer than the normal PT of 12 to 15 seconds.[23] In addition, the therapeutic range will be 1.2 to 1.5 times higher.[9,24,25]

The International Normalized Ratio (INR) expresses PT as a ratio of the patient's PT over the control PT, correcting for variations in sensitivity between laboratories, and is now the preferred method of monitoring.[1,24] INR is generally kept between 2.0 and 3.0, depending on the clinical indications for oral anticoagulation.[24]

Partial thromboplastin time (PTT) measures the activity in the intrinsic pathway and is used to monitor heparin therapy.[13] All coagulation tests are altered by heparin, but the whole blood clotting time, PTT, and thrombin time are the most sensitive to the drug.[12] In PTT, phospholipids and calcium ions are added to the patient's plasma. If factors IX, X or prothrombin are diminished, the PTT value will be longer than the usual 25 to 34 seconds.[4] Both PT and PTT can be used in the preoperative assessment of patients taking oral anticoagulants, since a prolonged PTT correlates with longer and more vigorous bleeding from extraction sites in patients whose PT is within the therapeutic range.[32]

Anti-aggregant therapy can be monitored via hemostasis time (HT), which is the occlusion time of a thin, short cannula inserted into the cubital vein.[27] HT is significantly prolonged within the same patient two hours following the ingestion of one gram of ASA.[27] Duke's Bleeding Time, which is measured by making a small incision in the patient's forearm and timing the duration of blood flow, is more commonly used, however.[12]

Drug Interactions

If it is necessary to prescribe medications that have the potential to interact with oral anticoagulants, these drugs should be taken consistently, rather than intermittently, to prevent unpredictable swings in coagulability.[28] Both PT and INR should be monitored to guide the adjustment of the anticoagulant dose.[28] Medications that affect coumadin action are listed in **Table II**.

Dental Management of Coumadinized Patients

In the past, it was routine practise to discontinue coumarin for the anticoagulated patient undergoing oral surgery, and, possibly, to prescribe Vitamin K to accelerate the lowering of PT[4] prior to initiating the procedure. Although the coumarin dosage was reinstituted postoperatively,[4,9,31,34] this regimen put the patient at risk of thromboembolism for several days. While thromboembolism is not especially dangerous for some patients, particularly if thrombophlebitis is resolving or atrial fibrillation is controlled,[9] there is a high risk of fatality for patients with prosthetic heart valves.[9,25,35] It is beneficial, in any case, to maintain the anticoagulant dosage consistently and continuously,[25,35] since withdrawing the drug may result in apparent "rebound" thrombosis, a reflection of a pretreatment thrombotic tendency.[35]

For extensive oral surgery in high-risk patients, a hospital regimen using coumadin and heparin may be em-

TABLE II

Drugs Affecting Action of Oral Anticoagulants

Mechanism	Agents
Drugs Increasing Anticoagulant Action	
Increases coumadin absorption	Hepatobarbitol, Allopurino[9]
Decreases vitamin K absorption or binds vitamin K	Clofibrate, Cholestyramine[2,10]
Inhibits coumadin metabolism	Metronidazole, Phenylbutazone,[29] Tricyclic anti-depressants, Fluvoxamine, Disulfiram[30]
Displaces coumadin from albumin	ASA, Chloral hydrate, Clofibrate, Indomethacin, Phenylbutazone, Phenytoin, Sulphonamide[2,9,10,30,31]
Increases hepatic receptor affinity for coumadin	Quinidine[9]
Decreases vitamin K production	Tetracycline
Suppresses degradative enzymes	Chloramphenico[10,31]
Decreases synthesis of fibrinogen	L-Asparagine[32]
Affects platelet function	ASA, Adriamycin, Daunomycin, Diphenhydramine, Mithramycin, Indomethacin, Phenylbutazone[9,10,28,32]
Unknown mechanism	Anabolic steroids, Chloroform, D-thyroxine, Glucagon, Sulfa compounds[31,33]
Drugs Decreasing Anticoagulant Action	
Induces hepatic microsomal enzymes	Barbiturates, Ethchlorvynol, Glutethimide[2,4,9,10,29,30,31]
Increases synthesis of vitamin K dependent hepatic factors	Estrogen compounds, including oral contraceptives[9,10,31]
Unknown mechanism	ACTH, Cortisone, Digitalis, Methylxanthines[10,31,33]

TABLE III

Local Hemostatic Techniques

1. Mechanical Procedures

- a) Pressure[11,31,33,36]
- b) Sutures — Absorbable/Non-absorbable[11,13,3134]
- c) Packs[11,31,36]
- d) Surgical stents[11,31,33]

2. Thermal Agents[31]

- a) Electrocautery
- b) Direct current
- c) Argon laser
- d) Cryogenic cooling

3. Chemical Agents[37,38]

- a) Topical epinephrine
- b) Caustics
- c) Astringents
- d) Thrombin
- e) Tissue thromboplastin
- f) Snake venom
- g) Mixture of fibrin, thrombin, and patient's venous blood

4. Absorbable Hemostatic Agents

- a) Gelfoam (denatured animal skin gelatin)[31,37] with thrombin[11,34,36]
- b) Surgicel (oxidized regenerated cellulose)[11,13,36,37]
- c) Oxycel (oxidized cellulose)[11,13,36,37]
- d) Avitene\Microcrystalline collagen (purified bovine corium collagen)[23,37]
- e) Tisseel (fibrin sealant)[37]

ployed. Coumadin is withdrawn 24 hours prior to hospital admission. IV heparin is begun on admission and the PT is checked. When it is normal, the patient is scheduled for surgery. Heparin is stopped eight hours preoperatively, and the PT and PTT are checked just prior to surgery. If they are within the normal range, surgery proceeds. Heparin is reinstituted 12 to 24 hours postoperatively, depending on the extent of the procedure, and coumadin is reinstituted on the evening after the surgery. When therapeutic levels are attained, heparin is discontinued and the patient is discharged.[4,9] Under this regimen, the patient is without anticoagulation for less than a day. By way of contrast, the same patient would be without anticoagulation for three or four days if coumadin was merely withdrawn.

In 1983, Bailey and Fordyce compared the immediate postextraction hemostasis in 25 anticoagulated patients (within the therapeutic range) with that of 25 control patients, and found no significant difference.[3] The anticoagulated patients did show a higher incidence of bleeding after initial hemostasis had been achieved and the patient discharged, which did not correlate with PT, the number of teeth extracted, or the bleeding tendency.[3] This late bleeding was controlled with local hemostatic measures, requiring suturing in a small number of cases.[3] In 1968, Waldrep and McKelvey performed extractions and minor oral surgical procedures on 76 anticoagulated patients without complications, and concluded that patients could safely undergo such procedures while continuing anticoagulant therapy.[33]

Certain points must be kept in mind when dealing with these patients. A careful history is needed to detect anticoagulant status,[36] as is a careful clinical examination to check for signs of bleeding, such as petechiae, hematomas, and gingival oozing.[35] The patient's physician must be consulted to determine the status of the underlying problem and the level of anticoagulation.[11,36] If dose adjustment is necessary to bring the patient into the therapeutic range, two or three days must elapse before the effects can be seen.[36] On the day of the procedure, PT is measured, and it is generally safe to go ahead if the patient's PT is twice control or less.[11,36]

The patient should be free of infection prior to the procedure,[36] and many clinicians recommend using prophylactic oral antibiotics.[11,36] No difference in complications has been reported with the use of regional blocks or local infiltration with local anesthetic.[3,33,39] An atraumatic surgical technique is employed, such as incising adjacent dental papillae, taking care not to tear the gingiva with forceps, and using suture closure.[4,11,33,34] Postoperative instructions include rest, a soft diet, and avoiding hot liquids, smoking, or sucking on straws.[34] The patient should be examined several days after surgery to monitor healing.[11]

Patients on Heparin or ASA

Patients undergoing heparin therapy should not be subjected to dental procedures until the therapeutic effect of the drug has disappeared.[11] In emergencies, heparin may be stopped at least six hours preoperatively and restarted six to 12 hours postoperatively, or protamine sulphate may be administered.[5]

Patients who have taken more than five regular strength aspirin tablets over the previous week should be screened for bleeding time if surgery if urgent.[11] In 1971, Schwartz and Pearson stated that a considerable proportion of postoperative bleeding following oral surgery is attributable to ASA use, and this finding is supported by other studies.[15,16] A careful history can prevent unexpected complications, since curettage or surgery can be done in small segments.[11] An alternate approach is to have the patient avoid ASA for one week prior to surgery.[4]

Local Hemostasis

If the anticoagulated patient does experience difficulty with postextraction hemorrhage, various local hemostatic techniques may be employed. These are listed in **Table III**. The newest additions to this list are the absorbable hemostatic agents. The five included in **Table III** are commonly used in Canada, and differ in mechanism. Gelfoam, with or without thrombin powder, provides a sticky surface for platelet adhesion and aggregation. It also absorbs fluid, and consequently exerts some pressure on the wound.[31,37] Oxycel and Surgicel, although acidic, are also relatively inert materials that can be combined with thrombin powder, but only if it is first

TABLE IV

Properties of an Ideal Local Hemostatic Agent[31,37]

1.	Ease of use
2.	Stability
3.	Remains in position in wound
4.	Assists in effecting rapid hemostasis
5.	Safe and effective for a variety of oral procedures
6.	Readily absorbed by body
7.	Does not delay healing
8.	Does not increase risk of infection
9.	Action independent of general clotting mechanism

dissolved in sodium bicarbonate, which allows preservation of its function by raising pH.[37] Avitene adheres to wet surfaces as well, and provides a scaffolding for platelet aggregation and granulation tissue.[37,41] It has proven effective in hemophiliacs and patients undergoing heparin or ASA therapy.[41] Tisseel forms a gel that undergoes complete absorption during wound healing.[37,42] It is composed of concentrated fibrinogen, factor XIII, plasma proteins, fibronectin, plasminogen, thrombin, calcium chloride, and antifibrinolysin, and is used in combination with gelfoam or avitene in the extraction sockets of patients with clotting disorders.[37,42] In 1991, Martinowitz et al extracted teeth in 40 anticoagulated patients, applying an absorbable hemostatic agent, and found no excessive postoperative bleeding.[39]

Systemic Factors

Patients undergoing anticoagulant therapy are at risk, medically, not only because of the prescribed drugs, but also because of the original disability that caused them to require anticoagulation.[2-5,9] For this reason, the whole patient must be considered during dental therapy. Care in stress reduction is advisable, and can be accomplished by preoperative sedation,[34] IV sedation,[43] short psychologically atraumatic appointments, local anesthetics with vasoconstrictors to ensure adequate pain control,[33,40] and careful psychological management.

Conclusion

The anticoagulated patient, if properly managed, should not be unduly at risk during dental treatment. With the use of INR, the therapeutic range is better defined. Consultation with the patient's physician ensures that underlying conditions are revealed and can be dealt with appropriately. Each patient requires individualized treatment, whether it be through adjusting anticoagulant dosage, using local hemostatic agents to control postoperative hemorrhage, or using a hospital regimen to avoid bleeding complications. ■

Dr. Carr *is a comprehensive surgery intern at Toronto General Hospital.*

Dr. Mason *is a comprehensive medicine intern at St. Michael's Hospital, affiliated with the University of Toronto.*

Reprint requests to **Dr. M. M. Carr**, *402-717 Bay Street, Toronto, Ontario, M5G 2J9*

References

1. Harmening, D.M. *Clinical hematology and fundamentals of hemostasis.* Philadelphia, FA Davis Co., 1992.
2. Gallus, A.S. Indications for oral anticoagulant treatment. *Drugs* 26:543-549, 1983.
3. Bailey, B.M.W. and Fordyce, A.M. Complications of dental extractions in patients receiving warfarin anticoagulant therapy. *Br Dent J* 155:309-310, 1983.
4. Medford, H.M. The dental patient on anticoagulant therapy: precautions and guidelines. *Gen Den* 33:343-345, 1985.
5. Scully, C. and Cawson, R.A. *Medical problems in dentistry*. Bristol, Wright PSG, 1982.
6. Dhami, M.S. and Bona, R.D. Using anticoagulants safely. *Postgrad Med* 90:121-130, 1991.
7. Dunagan, W.C. and Ridner, M.L. *Manual of Medical Therapeutics,* 26th edition. Boston, Little, Brown & Co., 1990.
8. Holyroyd, S.V. and Wynn, R.L. *Clinical pharmacology in dental practice*, third edition. Toronto, CV Mosby Co., 1983.
9. Roser, S.M. and Rosenbloom B. Continued anticoagulation in oral surgery procedures. *Oral Surg Oral Med Oral Pathol* 40:448-457, 1975.
10. Deykin, D. Warfarin therapy. *NEJM* 283:801-803, 1970.
11. Little, J.W. and Falace, D.A. *Dental management of the medically compromised patient*, third edition. St. Louis, CV Mosby Co., 1988.
12. Wilson, J.D. et al, Eds. *Harrison's principles of internal medicine*, 12th edition. New York, McGraw-Hill, 1991.
13. Rhyne, R.R. *Clinical care guidelines for dental management of the medically compromised patient.* Washington D.C., Office of Dentistry Veterans Administration, 1986.
14. Boss, A.H. et al. Effect of incremental doses of aspirin on bleeding time, platelet aggregation and thromboxane production in patients with cerebrovascular disease. *Eur J Clin Invest* 15:412-414, 1983.
15. Davis, M.J. Aspirin induced prolonged bleeding: report of case. *J Dent Child* 43:350, 1976.
16. McGaul, T. Postoperative bleeding caused by aspirin. *J Dent* 6:207-9, 1978.
17. Zucker, M.L. et al. Low vs. high-dose aspirin effects on platelet function in hyperlipopoteinemic and normal subjects. *Arch Intern Med* 146:921-5, 1987.
18. Sherry, S. Clinical aspects of antiplatelet therapy. *Sem Hematol* 22:125-134, 1985.
19. Housholder, G.T. et al. Fibrinolysis in rats after short-term aspirin therapy. *J Oral Surg* 38:412-416, 1980.
20. Pawlak, D.F. et al. Clinical effects of aspirin and acetaminophen on hemostasis after exodontics. *J Oral Surg* 38:944-947, 1978.
21. McTavish, D. et al. Ticlopidine – an updated review of its pharmacology and therapeutic use in platelet-dependent disorders. *Drugs* 40:238-59, 1990.
22. Mammem, E.F. An overview of dipyridamole. *Thrombosis Research* Supplement XII:1-3, 1990.
23. Benoit, P.W. and Hunt, L.M. Comparison of a microcrystalline collagen preparation and gelatin foam in extraction wounds. *J Oral Surg* 34:1079-1083, 1976.
24. Hirsh, J., Deykin, D. and Poller, L. "Therapeutic range" for oral anticoagulant therapy. *Chest* 89:11S-15S, 1986.
25. Rooney, T.P. General dentistry during continuous anticoagulation therapy. *Oral Med* 56:352-355, 1983.
26. Greenberg, M.S. et al. Partial thromboplastin time as a predictor of blood loss in oral surgery patients receiving coumarin anticoagulants. *JADA* 84:583-587, 1972.
27. Janzarik, H. et al. "Haemostasis Time," a modified bleeding time test and its comparison with the Duke and Ivy\Template bleeding times. *Blut* 52:345-356, 1986.
28. Davis, F.B. and Sczupak, C.A. Outpatient oral anticoagulation: guidelines for longterm management. *Postgrad Med* 66:100-109, 1979.
29. Hansten, P.D. *Drug interactions*, fourth edition. Philadelphia, Lea and Febiger, 1979.
30. Bezchlibnyk-Butler, K.Z. and Jeffries, J.J. *Clinical handbook of psychotropic drugs*, third edition. Toronto, Hogrefe and Huber Publishers, 1991.
31. Schwartz, S.I. et al, Eds. *Principles of surgery*, fifth edition. New York, McGraw Hill, 1989.
32. Carl, W. and Sako, K., Eds. *Cancer and the oral cavity*. Chicago, Quintessence Publishing Co. Inc., 1986.
33. Waldrep, A.C. and McKelvey, L.E. Oral surgery for patients on anticoagulant therapy. *J Oral Surg* 26:374-380, 1968.
34. Spouge, J.D. Hemostasis in dentistry, with special reference to hemocoagulation. *Oral Surg Oral Med Oral Pathol* 18:701-706, 1964.
35. Benoliel, R. et al. Dental treatment for the patient on anticoagulant therapy: prothrombin time value — what difference does it make? *Oral Surg Oral Med Oral Pathol* 62:149-151, 1986.
36. Little, J.W. Dental management of patients with surgically corrected cardiac and vascular disease. *Oral Surg* 50:314-320, 1980.
37. Evans, B.E. Local hemostatic agents (and

techniques). *Scand J Haem* Suppl 40:417-422, 1984.
38. Suzuki, H. et al. Local hemostasis for oral bleeding in patients with coagulopathy. *Lancet* 2:1362-1363, 1983.
39. Martinowitz, M. et al. Dental extraction for patients on oral anticoagulant therapy. *Oral Surg Oral Med Oral Pathol* 70:274-277, 1990.
40. Stein, M.D. et al. Collagen sponge as a topical hemostatic agent in mucogingival surgery. *J Periodont* 56:35-38, 1985.
41. Evans, B.E. et al. Use of microcrystalline collagen for hemostasis after oral surgery in a hemophiliac. *J Oral Surg* 37:126-128, 1979.
42. Matras, H. The use of fibrin sealant in oral and maxillofacial surgery. *J Oral Maxillofac Surg* 40:617-622, 1982.
43. Tomasi, N.J. and Wolf, J.E. Presurgical management of a patient receiving anticoagulant therapy: report of a case. *JADA* 88:1028-1029, 1974.

Become a UNICEF Volunteer

IT'S A CHANCE TO GROW

Ma Hla Hla, Burma

For both of you!

Andrea Martin
Actress and Unicef Volunteer

Unicef Canada

1-800-268-6364

MAY WE HAVE YOUR ATTENTION, PLEASE?

CDA ACCESS now offers ATTENTION GRABBERS! For a low additional cost, you can spruce up your classified notices with special eye-catching typography and art. Call Ola Murphy at (800) 661-5004 or (416) 278-6700 for information about this exclusive CDA ACCESS feature.

Here are some examples of CDA ACCESS ATTENTION GRABBERS! This feature is available only to Dental Professionals, at the following prices:

ALTERNATE BORDER	$12.50	SYMBOL	$25.95
SHADED	$15.95	SHADOW	$29.50
REVERSE	$19.95		

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Risques et bénéfices de l'ablation des troisième molaires incluses: Revue critique de la littérature – Partie 2

David S. Precious, DDS, M.Sc., FRCD(C), FICD, Dip. ABOMFS
Halifax, N.S.
Paul Mercier, DDS, FRCD(C), Dip. ABOMFS
Montreal
François Payette, DMD
Québec, Qc

SOMMAIRE

Après avoir abordé le point I – Risques de la non-intervention dans la première partie de cette revue critique de la littérature sur les risques et bénéfices de l'ablation des troisième molaires incluses, nous en sommes maintenant rendu aux points II – Risques de l'intervention, III – Bénéfice de la non-intervention et finalement IV – Bénéfices de l'intervention.

Mots clés

Troisième molaires incluses, risques et bénéfices.

ABSTRACT

In part I of this critical review of the literature on the risks and benefits of removing impacted third molars, we have dealt with: I – Risks of non-intervention. This second part is about: II – Risks of intervention, III – Benefit of non-intervention, and, finally, IV – Benefits of intervention.

Key Words:

Impacted third molars, risks and benefits.

II. Risques de l'intervention

A. Complications mineures et temporaires

Altération d'un nerf sensitif:

Selon les études, on rapporte une incidence d'altération temporaire d'un nerf sensitif suite à l'ablation des troisième molaires, variant entre 1 et 6 p. cent. (Howe 1960, MacGregor 1967, Rud 1970, Van Gool 1977, Kipp 1980, Bruce 1980, Rood 1983 b, Ferdousi 1985, Goldberg 1985, Osborn 1985, Wofford 1987 et Von Arx 1989). Le clinicien devra cependant noter, que plusieurs études incluaient à la fois les dents ayant fait éruption et les dents incluses. De même certaines études combinaient les paresthésies linguales et buccales. Il importe donc de revoir minutieusement la littérature avant de tirer des conclusions émanant d'une banque de données hétérogènes. À titre d'exemple, les études comprenant des populations expérimentales plus jeunes, rapportent une faible incidence de sensibilité post-chirurgicale altérée. Non seulement l'âge en soi représente un facteur, mais aussi le fait que la population plus jeune comporte moins de risques opératoires tels: les inclusions profondes, la proximité des racines dentaires avec un nerf et que dire du potentiel de régénération du tissu nerveux.

Selon la sévérité de l'atteinte nerveuse, il a été accepté universellement que le terme neurapraxie représente une défaillance temporaire dans la conduction nerveuse et que les termes axonotmèse et neurotmèse expriment des lésions ayant un potentiel de récupération plus sombre (Seddon 1943). Rood (1983 b) a décrit l'atteinte nerveuse en termes cliniques, rattachant les phénomènes de pression et de tension au dysfonctionnement du nerf. De plus, il mentionne: «Mild trauma can cause an ischemic episode which results in altered conduction of the nerve but which recovers soon after surgery. Severe compression or traction of the nerve can cause demyelination which in turn can result in a very prolonged recovery which frequently is incomplete.»

Alvéolite

L'alvéolite est l'une des complications les plus communes, les moins plaisantes et les moins désirées dans l'ablation des troisième molaires incluses. L'étiologie de l'alvéolite a été décrite par Birn (1972) et Nitzan (1983) et encore aujourd'hui il existe deux théories:

1. Le caillot sanguin est défaillant

2. Le caillot sanguin est normal mais subséquemment détruit par la fibrinolyse.

Cette dernière théorie est maintenant la plus acceptée. L'alvéolite ou «dry socket» des troisième molaires inférieures est plus fréquente chez les patients de plus de 25 ans (Bruce 1980, Osborn 1985, Bnorland 1987) et chez celles utilisant des anovulants (Lilley 1974, Scow 1974, Butler 1977). Les incidences varient énormément d'une étude à l'autre se chiffrant entre 1 et 35 p. cent (Goldberg 1985, Swanson 1966). Il s'agit de bien interpréter les signes cliniques d'une alvéolite avec la présence de douleur, laquelle est très subjective et dont le seuil varie beaucoup d'un individu à l'autre. Plusieurs auteurs ont proposé des méthodes de prévention de l'alvéolite, aucune cependant s'avérant efficace dans tous les cas. Le clinicien doit alors accepter le fait qu'en dépit de son habileté chirurgicale et d'un protocole opératoire rigoureux, l'incidence d'alvéolite auprès de sa clientèle sera entre 1-5 p. cent.

Infection et trismus

Goldberg (1985) rapporta une incidence d'infection post-opératoire de 4.2 p. cent, mais sans faire de distinction entre les infections immédiates et retardées. Osborn (1985) découvra un taux d'infection post-chirurgicale de 2 p. cent mais curieusement avec une incidence plus marquée chez les jeunes patients et qu'en plus, ces infections survenaient après 15 jours dans la majorité des cas. Même si Bruce (1980) n'étudia pas spécifiquement l'incidence d'infection post-opératoire, il a tout de même noté une présence plus marquée d'oedème important avec trismus chez les popula-

tions plus âgées. En analysant soigneusement ses résultats, on s'aperçoit que les inclusions disto-angulaires et horizontales sont moins fréquentes chez les jeunes (15 p. cent) que chez les patients plus âgés (43 p. cent). Cela pourrait expliquer les conclusions rapportées par Bruce.

Hémorragie

Bruce (1980) fait état d'épisodes de saignement excessif per-opératoire dans 5.8 p. cent des cas. Ces épisodes survenaient plus fréquemment dans les groupes âgées ayant des inclusions profondes. Goldberg (1985) dans une étude comportant 500 patients d'un âge moyen de 19 ans, nota la présence de saignement excessif post-opératoire dans 0.6 p. cent des cas.

Fracture dento-alvéolaire.

Déplacement dentaire

La fracture alvéolaire associée à l'ablation d'une troisième molaire incluse, particulièrement à la mandibule, est une complication relativement rare. Selon Bruce (1980), le cortex lingual fracture dans 2 p. cent des cas, 4 p. cent chez les gens âgés. Le déplacement lingual d'une dent mandibulaire peut accompagner une fracture du cortex lingual. Néanmoins, aucun résultat concernant cette condition fût mentionné. Même si les troisième molaires incluses supérieures sont susceptibles d'être déplacées dans le sinus maxillaire et la fosse infra-temporale, l'incidence de pareils déplacements n'a jamais été étudiée à l'exception d'Oberman (1986) qui rapporta une série de 250 fistules oro-antrales, 3 seulement étant le résultat du déplacement d'une M3 dans le sinus maxillaire.

B. Complications mineures et permanentes

Lésion parodontaire

Kugelberg (1985) dans une étude comportant 215 cas d'ablation de M3 mandibulaires, relata la présence de poches parodontaires au distal de la M2 excédant 7mm dans 43 p. cent des cas, 32 p. cent excédant 4mm. Auprès des jeunes, une ablation précoce réduisait d'environ 50 p. cent les poches parodontaires alors qu'au sein de populations plus âgées les résultats étaient moins encourageants. Ash (1962) nota la présence de poches parodontaires dans 30 p. cent des cas avant l'ablation et 50 p. cent des cas après 1 an. Il mentionna qu'après l'âge de 20 ans, les risques de perte de support parodontaire au niveau de la seconde molaire semblent plus importants s'il y a ablation de la M3. Woolf (1978), Stephens (1983), Chin Que (1985) et Schofield (1988) ne rapportaient aucune corrélation entre l'incidence de poches parodontaires et le type de lambeau utilisé.

Traumatisme à la dent voisine

Selon Bruce (1980), l'incidence de traumatisme à la dent voisine se chiffre à 0.3 p. cent. Cette mesure est le résultat d'une évaluation faite au moment de la chirurgie.

Lésion à l'articulation temporo-mandibulaire

L'étude de Pullinger (1986) démontra que les patients, suite à l'ablation chirurgicale d'une troisième molaire, sont légèrement plus symptomatiques. Moser (1990) nota une incidence plus marquée de symptômes reliés à l'A.T.M. suivant l'ablation chirurgicale de M3, la nature de ceux-ci cependant n'étant que transitoire. L'incidence et la sévérité des lésions occasionnées à l'articulation temporo-mandibulaire par l'ablation de M3 restent donc à établir.

C. Complications majeures

Dysesthésie

La grande majorité des atteintes du trijumeau sont, fort heureusement, soit des phénomènes de neurapraxie ou bien d'axonotmèse, phénomènes n'impliquant pas la structure périneurale. Pour cette raison, ces lésions n'entraînent qu'une défaillance temporaire. Par contre, lors d'une séparation des structures axonales comme dans le cas d'une neurotmèse, le déficit sensitif peut être permanent. Un déficit sensitif qui persiste au-delà de six mois sera vraisemblablement permanent (MacGregor 1985). Plusieurs études s'accordent à dire que dans environ 1 p. cent des cas, cela se produit. Même si l'atteinte permanente est souvent associée à des inclusions profondes, elle ne peut pas être prédite que par cette seule observation (Mac Gregor 1985, Rud 1983). Parmi les études souvent citées dans la littérature, aucune méthodologie rigoureuse fût employée pour vérifier la sensibilité. Il est donc justifié de croire que l'incidence de paresthésie labiale permanente a été sous-estimée. L'anesthésie linguale a été étudiée subjectivement par Ferdousi (1985), Rood (1983 a), Mason (1988) et Von Arx (1989). Tous, rapportèrent que la récupération est similaire à celle du nerf dentaire inférieur. Cela va à l'encontre de l'opinion populaire voulant qu'une lésion du nerf lingual a un moins bon pronostic de guérison que le nerf dentaire inférieur.

Toute l'information concernant le potentiel de récupération des nerfs crâniens est basée sur le comportement du nerf facial (VII) et non sur le nerf dentaire inférieur, lequel possède une trajectoire intra-osseuse et n'est presqu'exclusivement que sensitif. De nombreuses méthodes visant à la réparation du nerf dentaire inférieur ont été proposées, allant de la simple observation jusqu'à l'emploi de tubulures à base de collagène en passant par les greffes autogènes (Eppley 1989). Encore aujourd'hui, aucune méthode ne s'est avérée supérieure quant à la récupération de la fonction normale. Selon Donoff (1987), s'il y a détérioration continuelle lors d'examens répétés mensuellement ou s'il n'y a aucune amélioration après six mois, la réparation par microchirurgie est indiquée. Meyer (1990) recommande d'emblée, la chirurgie dans le cas d'une lésion douloureuse ne s'améliorant plus après six mois post-opératoire.

Infection d'organes vitaux

Selon Otten (1987), dans 40 p. cent des cas post-ablation de dents semi-incluses, nous assistons à une bactériémie composée de souches aérobique et anaérobique, celles-ci pouvant causer des endocardites ou des abcès cérébraux, hépatiques ou pulmonaires. Avec l'avènement des antibiotiques, le taux de complications systémiques majeures suite à l'ablation de dents infectées a grandement diminué (ex: endocardite, thrombose du sinus caverneux). Cependant, il faut toujours garder à l'esprit que ces conditions sont potentiellement omniprésentes.

Les études menées par Head (1984) et Otten (1987) ont démontré que l'utilisation de pénicilline et de métronidazole pour les patients à risques élevés offrait une couverture jugée adéquate et que la clindamycine s'était montrée supérieure à l'érythromycine si les deux premiers ne pouvaient être employés.

Fracture de la mandibule et de la tubérosité

Suite à l'ablation d'une M3, la fracture mandibulaire est une complication extrêmement rare si l'anatomie de celle-ci est évidemment normale. Le déplacement d'une M3 supérieure dans le sinus maxillaire ou la fosse infra-temporale

est aussi une complication extrêmement rare (Winkler 1977). Même s'il est évident que dans une fracture mandibulaire, la réduction immédiate avec fixation est indiquée, rien de tel n'a été démontré en ce qui a trait aux M3 supérieures déplacées dans le sinus maxillaire ou la fosse infra-temporale.

Par convention et par crainte qu'une dent déplacée de la sorte puisse causer une infection si laissée en place, on en recommande son ablation mais ce, sans fondement scientifique précis.

Blessure et litige

Au Canada et aux États-Unis, le nombre de poursuite judiciaire par négligence ou faute professionnelle ne cesse d'augmenter (Swanson 1989 a) et ce, particulièrement pour la perte de sensibilité de la lèvre inférieure. Lorsqu'un chirurgien décide de traiter un patient, il doit en assumer les risques. Même si le fait de ne pas informer un patient sur la nature de l'intervention qu'on lui propose et les risques encourus par une telle procédure est considéré comme «négligence professionnelle,» il n'en reste pas moins que la justice semble adopter l'attitude que: «If a particular treatment is one which cannot reasonably be avoided either because of constant pain or serious complications, the average reasonable person in the patient's position would consent to the treatment even if he had known the risks» (Rosovsky 1987). La conduite à tenir est donc de bien informer son patient si l'on envisage une procédure quelconque. Néanmoins, cet énoncé fait allusion aux procédures chirurgicales ne pouvant pas être évitées, soit à cause de la douleur persistante ou des complications que subit le patient. Or, comme on le sait maintenant, la décision à savoir si l'on doit extraire ou non les M3 asymptomatiques demeure des plus ambiguë.

Lors de la conférence du N.I.H., deux consensus fûrent adoptés à cet effet:

1. Que le patient doit être informé des risques chirurgicaux pouvant causer des lésions temporaires d'en plus de 5 p. cent des cas.

2. Que le patient doit être informé des risques chirurgicaux pouvant causer des lésions permanentes d'en plus de 0.5 p. cent des cas.

Les risques ou effets possibles comprennent: la douleur, l'hémorragie, l'oedème, l'alvéolite, le trismus et l'atteinte d'un nerf. À cette liste proposée en 1979 et à la lumière des nouvelles études épidémiologiques, les problèmes parodontaires (plaque, gingivite, et poches parodontaires) doivent maintenant y figurer.

III Bénéfice de la non-intervention

Pour l'instant, il n'y a pas assez d'évidence pour nous permettre d'établir une liste d'indications et de contre-indications absolues en ce qui a trait à l'ablation versus la conservation d'une troisième molaire incluse. Cependant, à défaut de démontrer que le «jeu en vaut vraiment la chandelle,» le bénéfice de la non-intervention sera toujours évident en soi.

En plus d'éviter les complications possibles de l'intervention, la non-intervention permettra le développement complet de la dentition et des mâchoires et d'atteindre un potentiel de croissance optimal. L'éruption complète des troisième molaires en position fonctionnelle et avec un parodonte sain assure une stabilité occlusale idéale. En plus, la conservation d'une M3 soit pour l'éruption future ou à des fins de transplantation n'est pas négligeable.

IV Bénéfices de l'intervention

A. En relation avec l'âge

Toutes les études s'accordent à dire que plus tôt l'ablation est exécutée, moins de morbidité il y a. Par contre, aucune étude n'a décrit de méthodes précises de prédiction de la croissance des mâchoires. L'émergence tardive au début de l'âge adulte est une conséquence possible de troisième molaires orientées verticalement ou mésio-verticalement.

De façon prospective, nous pouvons aborder le problème des troisième molaires mandibulaires asymptomatiques sous deux volets différents. À titre préventif au sens large du mot, c'est-à-dire la germectomie à la fin de la période de l'enfance (Ricketts 1972) et la trépanation latérale avec ablation durant l'adolescence (Howe 1971, Bnorland 1987, Lytle 1969, Laskin 1971, Osborn 1985). Ou bien à titre curatif lequel comprend des procédures conservatrices telles l'exposition de la couronne si la position est acceptable, l'ablation à la fin de l'adolescence s'il y a incontestablement un manque d'espace, l'ablation précoce à l'âge adulte si le potentiel d'éruption est arrêté ou s'il y a une éruption partielle mais avec la présence d'une poche parodontaire au distal de la seconde molaire (Poswillo 1981, Guralnick 1982, '84, Bruce 1980, Nordenram 1987, Lysell 1989, Eliasson 1989). La décision finale repose en grande partie sur l'hygiène buccale du patient et l'état général de sa dentition **(fig. 1)**. Comme le mentionnait Von Wowern (1989): «The risk/benefit factors plead for an early removal of ectopic impactions and against a routine removal later when the risk for severe postoperative complications exceeds the risk for pathological development around the third molar.» Eliasson (1989) arrive à la même conclusion en disant: «when an impacted third molar is deliberately retained, the patient should always be informed and the condition checked at regular intervals.» Lysell (1989) supporta l'idée débattue par Ash (1962) à l'effet que les inclusions profondes indemnes de pathologie devraient être laissées en place tant et aussi longtemps qu'elles demeurent asymptomatiques.

L'âge joue un rôle prépondérant pour la transplantation dentaire. Il est crucial de préserver la membrane parodontaire de la dent transplantée afin de prévenir la destruction des cellules desmodontales, car sa perte mène directement à la résorption radiculaire et par le fait même conduit à l'échec de l'intervention. Selon Schliephake et Neukam (1989), le facteur le plus important est le stade du développement radiculaire. Ces notions favorisent la transplantation de dents incomplètement développées et défavorisent la transplantation de celles qui ont atteintes leur maturité.

B. En relation avec les différentes approches thérapeutiques

La littérature abonde d'articles traitant de techniques chirurgicales, de pharmacothérapie et de la prise en charge des patients pendant la chirurgie. Par contre, très peu d'articles bien menés, comparent différents protocoles opératoires, rendant ces techniques incertaines (Holland 1984).

Procédures locales contre l'alvéolite

Birn (1973) démontra que la pathophysiologie de l'alvéolite est reliée d'une part à une activité fibrinolytique accrue et d'autre part à une libération de kinines responsables de la douleur.

La fibrinolyse est un maillon de la cascade d'événements biochimiques pouvant être initiée par une lésion tissulaire (Mac Gregor 1985). Cette condition est plus fréquente chez les femmes, particulièrement chez celles prenant des

anovulants (Lilley 1974, Schow 1974). Certaines bactéries comme Treponema denticola (Nitzan 1983) peuvent activer cette cascade biochimique. Différents agents locaux destinés à prévenir l'alvéolite ont été étudiés.

Les cônes antifibrinolytiques se sont avérés inefficaces (Ritzau 1973, Gersel-Pedersen 1979). De meilleurs résultats ont été obtenus avec l'utilisation de tétracycline soit en cônes (Hall 1971) ou bien en suspension sur éponges de gélatine (Swanson 1989 b). Cette dernière étude faite à double insu, démontra une diminution marquée d'alvéolite par rapport au côté non-traité. Mais d'autres procédures se sont avérées efficaces, comme l'irrigation copieuse suivant l'ablation en réduisant la flore bactérienne résiduelle dans l'alvéole au moment de la coagulation (Butler 1977, Gersel-Pedersen 1979, Krekmanov 1986). Berwick (1990) obtena les mêmes résultats avec l'irrigation de chlorhexidine et le cétylpyridium qu'avec l'irrigation de sérum physiologique. L'administration systémique de métronidazole (Rood 1979) ou de tinidazole (Mitchell 1986), antibiotiques efficaces contre les anaérobes, réduisent aussi la fréquence des alvéolites. Toutes ces études ne font que renforcir l'idée voulant que l'infection anaérobique soit un agent étiologique très important dans l'alvéolite.

Procédures locales contre la douleur, l'enflure et le trismus

MacGregor (1985) présenta un excellent débat sur les difficultés à mesurer les symptômes individuels et subjectifs comme la douleur et ce, en dépit de méthodes d'évaluation avant-gardiste comme le «McGill Pain Questionnaire.»

Certaines études ont tenté d'évaluer l'oedème buccal en utilisant un compas facial (Sowray 1961, Van Gool 1975, Holland 1984) ou encore avec stéréophotographie (Pederson 1985). Van Gool (1975) testa cette dernière façon de faire par appréciation subjective à double insu et démontra que les observateurs ne pouvaient pas discriminer les oedèmes légers. Le trismus est défini comme étant une limitation dans l'ouverture de la bouche et peut être mesuré facilement par la distance séparant les incisives supérieures et inférieures. Malgré cela, aucune valeur numérique ne fût établie.

L'utilisation de dexaméthasone au moment de l'ablation chirurgicale afin de réduire la douleur, l'oedème et le trismus a modifié grandement la vitesse de guérison des patients (Linenberg 1965, Hooley 1974, Pederson 1985, Beirne 1986). La dexaméthasone inactive la phospholipase A2, enzyme responsable de la conversion des phospholipides membranaires en acide arachidonique. Subséquemment, les prostaglandines, la thromboxane A2, la prostacycline et les leucotriènes se trouvent eux aussi inactivés. Les leucotriènes semblent posséder une vertu «hyperalgésique» plus puissante que celle des prostaglandines (Ferreina 1972). Il est donc justifié d'administrer des stéroïdes avant l'ablation chirurgicale de M3 afin de réduire l'oedème post-opératoire et la douleur.

L'administration prophylactique de corticostéroïdes s'est aussi avérée efficace dans la diminution de l'oedème post-opératoire, le trismus et la douleur (Hooley 1969, Guernsey 1971, Hall 1971, Messer 1975, Edilby 1985, Holland 1987, Montgomery 1990). Montgomery (1990) confirmait les dires de Bystedt (1985) qu'une faible dose de glucocorticoïdes oraux est moins efficace qu'une forte dose parentérale lorsqu'utilisées à court terme.

Les anti-inflammatoires non-stéroïdiens (A.I.N.S.) agissent eux aussi sur l'oedème et la douleur. La douleur post-opératoire peut être minimisée si on limite le processus inflammatoire (Sisk 1985). L'efficacité des A.I.N.S. dans le contrôle de la douleur suite à l'ablation de M3 a été bien démontrée. Une analgésie post-chirurgicale supérieure à celle engendrée par les narcotiques (indépendamment qu'ils soient administrés en pré ou post-opératoire) est atteinte si l'on administre des A.I.N.S. en pré-opératoire (Dionne et Al 1983). L'administration post-opératoire d'A.I.N.S. s'est montrée supérieure à l'utilisation combinée de narcotiques légers dans les mêmes conditions. L'utilisation préférentielle d'A.I.N.S., en plus de procurer une analgésie supérieure aux narcotiques, n'engendre pas tous les effets secondaires de ces derniers. Les anesthésiques locaux à action prolongée comme la bupivicaïne, peuvent diminuer les besoins post-opératoires en analgésiques (Chapman 1987, 1988).

Les anti-inflammatoires non-stéroïdiens réduisent l'oedème par blocage de la synthèse des prostaglandines. Contrairement aux stéroïdes, les A.I.N.S. n'affectent pas l'axe hypothalamo-hypophysaire, évitant ainsi les complications surrénaliennes. Chez le rat, l'administration de méclofénanate de sodium, un A.I.N.S., prévient davantage l'infiltration leucocytaire et donc contrôle mieux le processus inflammatoire que l'hydrocortisone (Huann 1988).

Antibiotiques

Krekmanov (1986) démontra que l'utilisation systémique de pénicilline V avec l'irrigation de la plaie réduit davantage le trismus que l'irrigation seule ou que le placebo. Des résultats similaires concernant la morbidité post-opératoire réduite par l'administration d'antibiotiques fûrent rapportés par MacGregor (1980) et Goldberg (1985). Toutefois, Curran (1977) ne trouvait aucun avantage à l'usage systématique de pénicilline. On arriva aux mêmes conclusions à partir des résultats d'une étude comparant les bénéfices de la pénicilline, de la tinidazole ou simplement d'un placebo (Happonen 1990). Hellem (1973) compara l'utilisation systémique de pénicilline V, de lincomycine et d'un coton imbibé de vernis «Whitehead» et démontra que seule, la procédure locale réduisait la douleur et le trismus lorsque comparée au groupe témoin. Le métronidazole par voie systémique, dans une étude de Kaziro (1984), réduisa la douleur et favorisa la guérison après l'ablation de M3.

Approche buccale versus linguale

La controverse persiste toujours en ce qui a trait aux mérites de ces deux techniques. L'approche linguale aussi dénommée «lingual split-bone technique,» fût d'abord proposée par Fry, ensuite décrite par Ward en 1956 et réévaluée par Rud en 1970 et 1984.

Selon Ward les avantages de cette technique résident dans:

1. La vitesse
2. L'élimination d'espace mort
3. Une meilleure guérison osseuse

lorsque la dent est en linguo-version. Cependant, les phénomènes de trismus seraient davantage éliminés par approche buccale selon Van Gool (1977). Malheureusement, très peu d'études objectives comparant l'approche buccale versus linguale en regard des séquelles post-opératoires, ont été rapportées. Middlehurst (1989) ne trouva aucune différence entre les deux approches en ce qui a trait à la douleur et l'oedème post-opératoire. Dans l'étude de Von Arx (1989), un taux élevé de paresthésie du nerf lingual (22 p. cent) et du nerf dentaire inférieur (5 p. cent) coïncida avec l'approche linguale. L'au-

teur mentionna cependant, que les paresthésies disparaissaient en l'espace d'une semaine, sans pour autant donner plus de détails.

Soins apportés à la plaie

Doit-on la suturer ou non? Rud (1963) nota une guérison plus rapide dans les plaies non-suturées. Plusieurs auteurs ont tenté de démontrer les mérites de différents matériaux placés dans l'alvéole. Nonobstant l'effet bénéfique d'antibiotiques locaux et d'irrigation copieuse sur l'incidence des alvéolites, aucune conclusion ne peut être tirée de ces études (Peterson 1984, Surgicel and gelatin sponge: Brekke 1986, polylactic acid cubes: Moller 1988, fibrin sealant). Dans une étude comportant 70 patients Holland (1984) compara l'influence de la fermeture complète et de la fermeture partielle ainsi que l'effet de la pâte «BIPPS» employée directement dans l'alvéole des M3 inférieures, en regard de la douleur, de l'oedème et de la guérison post-opératoire. Il conclua que la fermeture complète de la plaie provoquait davantage de douleur et d'oedème et que l'utilisation d'un pansement local retarda la guérison dans quelques cas.

Brabender (1988) ne démontra aucune différence entre la mise en place ou non d'une gaze vaselinée en rapport avec la douleur et l'oedème post-chirurgical. Dubois (1982) à partir d'une étude comportant 56 patients conclua: «Secondary closure with healing by secondary intention appears to minimize immediate post-operative edema and pain when compared to that seen in primary closure techniques.»

Conclusion

«Les paramètres n'ont pas encore été établis pour prédire quelle dent incluse s'infectera. C'est d'ailleurs à ce niveau que se situe le problème d'en arriver à une analyse décisionnelle valable des coûts et bénéfices» (MacGregor 1991). De telles études ont récemment été mises en valeur par Tulloch (1987). Si le clinicien désire conseiller sagement et prudemment son patient en ce qui a trait à l'intervention ou la non-intervention dans le cas de M3 asymptomatiques, il se doit d'adopter une approche systématique tenant compte de tous les facteurs qui influencent à la fois l'affection clinique spécifique mais plus important encore, le patient en tant que tel.

La **fig. 1** illustre un exemple d'analyse décisionnelle concernant les troisième molaires mandibulaires asymptomatiques. Quatre différentes stratégies y figurent, pour ceux et celles ayant une hygiène buccale adéquate comme pour ceux et celles ayant une hygiène buccale déficiente. Les risques de l'intervention sont illustrés au moyen d'une échelle de valeurs négatives variant entre 1 (faible) et 5 (élevé). De la même façon, les bénéfices de l'intervention sont représentés par des valeurs positives. Les totaux de chaque échelle (risques et bénéfices) sont ainsi additionnés, indiquant par le fait même laquelle des stratégies serait la plus avantageuse. Cette approche ne peut être évaluée de façon rigoureuse et mathématique puisque les valeurs suggérées ne sont ni égales en nombre ou en importance pour les risques ou bénéfices étudiés. Les auteurs se sont basés sur leur revue de la

Analyse décisionnelle pour l'ablation des M3 mandibulaires

Échelle
1. 3. 5.
bas élevé

	Stratégie 1 Ablation des M3 asymptomatiques vers l'âge de 14 ans		**Stratégie 2** Ablation de quelques M3 asymptomatiques à 14 ans, la majorité avant 22 ans		**Stratégie 3** Observer les patients Ablation des M3 symptomatiques seules, avant 22 ans		**Stratégie 4** Ablation des M3 symptomatiques seulement sans suivi clinique	
Risques (-)	**Bonne HB**	**Pauvre HB**	**Bonne HB**	**Pauvre HB**	**Bonne HB**	**Pauvre HB**	**Bonne HB**	**Pauvre HB**
Choc psychologique	-4	-5	-2	-4	-1	-1	-1	-1
Dent potentiellement utile	-1	-3	-1	-2	-1	-2	-1	-1
Complications mineures temporaires	-1	-2	-2	-3	-1	-2	-4	-5
Complications mineures permanentes	-1	-2	-1	-3	-1	-2	-3	-4
Complications majeures	-0.5	-0.5	-1	-1	-1	-3	-2	-4
Sub totaux	-7.5	-12.5	-7	-13	-5	-10	-11	-15
Bénéfices (+)								
Gain d'espace	+4	+3	+5	+3	+2	+1	+1	+1
Prévention contre les infections, kystes et tumeurs	+2	+3	+4	+4	+2	+1	+1	+1
Facilite l'hygiène buccale en améliorant la santé parodontaire	+2	+3	+2	+4	+1	+1	+1	+2
Sub totaux:	+8	+9	+11	+11	+5	+3	+3	+4
Totaux:	+0.5	-3.5	+4	-2	+0	-7	-8	-11

Fig 1. Analyse décisionnelle pour l'ablation des M3 mandibulaires incluses utilisant quatre stratégies selon le degré d'hygiène buccale.

littérature pour formuler ces valeurs.

À la lumière des résultats de cette étude, il semble que la meilleure stratégie à adopter pour un individu en croissance est d'enlever certaines troisième molaires mandibulaires incluses avant l'âge de 14 ans et d'autres avant 22 ans, après quoi les chances d'émergence sont minimes. Passé cet âge, la meilleure stratégie à adopter, en tenant toujours compte de l'hygiène buccale, serait de suivre le patient périodiquement et en l'informant des risques et bénéfices encourus. Ultimement, comme pour n'importe quelle décision à visée thérapeutique, le clinicien s'en tient aux faits et considère les intérêts du patient avant tout. Ceci est notre responsabilité professionnelle. ■

Dr David S. Precious *est directeur du programme de chirurgie buccale et maxillo-faciale à la faculté dentaire, Dalhousie University.*

Dr Paul Mercier *est directeur de la Clinique de l'atrophie des maxillaires, Département de chirurgie buccale et maxillo-faciale, Centre Hospitalier de St-Mary, Université de Montréal.*

Dr François Payette *est résident au programme de chirurgie buccale et maxillo-faciale de l'Université Laval, Hôpital de l'Enfant-Jésus de Québec.*

Remerciements: *Les auteurs tiennent à remercier sincèrement une fois de plus le docteur Guy Maranda, chirurgien buccal et maxillo-facial de l'Hôpital de l'Enfant-Jésus de Québec et professeur agrégé de l'Université Laval, pour avoir revu et corrigé ce texte ainsi que madame Louise Giguère, secrétaire de la clinique de chirurgie buccale et maxillo-faciale de l'Hôpital de l'Enfant-Jésus et mademoiselle Phoebe A. Schnelli pour l'aide apportée à la traduction et à la réalisation de cet article.*

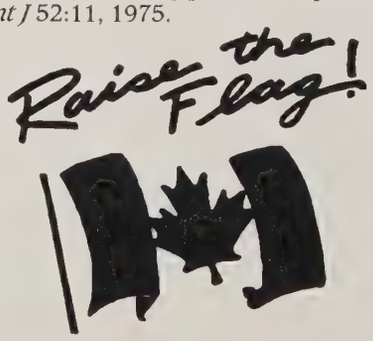
Demandes de tirés à part: **Dr François Payette**, *Programme de chirurgie buccale et maxillo-faciale, Université Laval, Hôpital de l'Enfant-Jésus, 1401, 18e rue, Québec, Québec, Canada, G1J 1Z4.*

Bibliographie

1. Ades, A.G., Joondeph, D.R., Little, R.M.,et al. A long-term study of the relationship of third molars to changes in the mandibular arch. *Am J Ortho Dentofac Orthop* 97:323, 1990.
2. Altonen, M. Haavikko, K. and Mattila, K. Developmental position of lower third molar in relation to gonial angle and lower second molar. *Angle Ortho* 47:249, 1977.
3. Ash, M., Costitch, E. and Hayward, J. A study of the periodontal hazard of third molars. *J Periodont* 33:209, 1962.
4. Azaz, B. and Taicher, S. Indications for the removal of the mandibular impacted third molar. *J Canad Dent Assoc* 48:731, 1982.
5. Barabander, E. and Cattaneo, G. The effect of surgical drain together with a secondary closure technique on post-operative trismus swelling and pain after mandibular third molar surgery. *Int J Maxillofac Surg* 17:119, 1988.
6. Bergstrom, K. and Jensen, R. The significance of third molars in the aetiology of crowding. *Trans Euro Ortho Soc 84:96, 1960.*
7. Berwick, J. and Lessin, M. Effects of chlorhexidine gluconate oral rinse incidence of alveolar osteitis in mandibular third molar surgery. *J Oral Maxillofac Surg* 48:444, 1990.
8. Bierne, O., Ross, L. and Hollander, B. The effect of methylprednisone on pain, trismus and swelling after removal of third molars. *Oral Surg* 61:134, 1986.
9. Birn, H. Kinin and pain in dry socket. *Int J Oral Surg 1:34, 1972.*
10. Birn, H. Etiology and pathogenesis of fibrinolytic alveolitis. *Int J Oral Surg* 2:211, 1973.
11. Bjork, A., Jensen, E. and Palling, M. Mandibular growth and third molar impaction. *Acta Odont Scand 14:231, 1956.*
12. Bjork, A. and Skieller, V. Normal and abnormal growth of the mandible. *Eur J Orthod* 5:1, 1983.
13. Bnorland, T. Removal of third molar germs. Studies of complications. *Int J Oral Maxillofac Surg* 16:385, 1987.
14. Brekke, J.H., Bresner, M. and Reitman, J.M. Polylactic acid surgical dressing material: postoperative therapy for dental extraction wounds. *J Canad Dent Assoc* 52:599, 1986.
15. Broadbent, B.H. The influence of the third molars on the alignment of teeth. *Am J Ortho* 29:312, 1943.
16. Bruce, R.A., Frederickson, G.C. and Small, G.S. Age of patients and morbidity associated with mandibular third molar surgery. *JADA* 101:240, 1980.
17. Butler, D. and Sweet, J. The effect of lavage on incidence of localized osteitis in mandibular third molar extraction. *Oral Surg* 44:14, 1977.
18. Bystedt, H. and Nordenram, A. Effect of methylprednisilone on complications after removal of impacted mandibular third molars. *Swed Dent J* 9:65, 1985.
19. Chapman, P.J. Postoperative pain control for outpatient oral surgery. *Int J Oral Maxillofac Surg* 16:319, 1987.
20. Chapman, P.J. A controlled comparison of bupivicaine for postoperative pain control. *Aust Dent J* 33:288, 1988.
21. Chin Que, T.A., Gosselin, D., Millar, E.P., et al. Surgical removal of the fully impacted mandibular third molar: The influence of flap design and alveolar bone height on the periodontal status of the second molar. *J Periodont* 56:625, 1985.
22. Conklin, W.W. and Stafne, E.C. A study of odontogenic epithelium in the dental follicle. *JADA* 39:143, 1949.
23. Corio, R.S., Goldblatt, S.J., Edwards, P.A., et al. Ameloblastic carcinoma a clinico pathologic study and assessment of eight cases. *Oral Surg* 64:570, 1987.
24. Curran, J.B., Kennett, S. and Young, A.R. An assessment of the use of prophylactic antibiotics in third molar surgery. *Int J Oral Surg* 3:1, 1974.
25. Dachi, S.F. and Howell, F.V. A survey of 3,874 routine full mouth radiographs II: a study of impacted teeth. *Oral Surg* 14:1165, 1961.
26. Dionne, R., Sisk, A., Fox, P. et al. Suppression of postoperative pain by preoperative administration of flurbiprofen in comparison to acetaminophen and oxycodone and acetaminophen. *Curr Ther Res* 34:15, 1983.
27. Donoff, B. *Manual of Oral and Maxillofacial Surgery.* Mosby, Toronto, p. 16, 1987.
28. Dubois, D., Pizer, M. and Chinnis, R. Comparison of primary and secondary closure techniques after removal of impacted mandibular third molars. *J Oral Maxillofac Surg* 40:631, 1982.
29. Edilby, J.I., Canniff, J.P. and Harris, M. A double blind placebo controlled trial of the effects of dexamethasone on postoperative swelling. *J Dent Res* 61:556, 1982.
30. Eliasson, S. Heimdahl, A. and Nordenram, A. Pathological changes related to longterm impaction of third molars: a radiographic study. *Int J Oral Maxillofac Surg* 18:210, 1989.
31. Eppley, B., Doucet, M., Winkelmann, T., et al. Effect of different surgical repair modalities on regeneration of rabbit mandibular nerve. *J Oral Maxillofac Surg* 47:257, 1989.
32. Ferdousi, A.M. and MacGregor, A.J. The response of the peripheral branches of the trigeminal nerve to trauma. *Int J Oral Surg* 14:41, 1989.
33. Ferreira, S.H. Prostaglandins, aspirin-like drugs and analgesics. *Nature* 240:200, 1972.
34. Garcia, R.I. and Chauncey, H.H. The eruption of third molars in adults: A 10-year longitudinal study. *Oral Surg 68:9, 1989.*
35. Gersel-Pedersen, N. Tranexamic acid in alveolar socket in the prevention of ASD. *Int J Oral Surg* 8:421, 1979.
36. Goldberg, M.H., Nemerich, A.N. and Marco, W.P. Complications after mandibular third molar surgery: a statistical analysis of 500 consecutive procedures in private practice. *JADA* 111:277, 1985.
37. Grabert, T. and Kaineg, T. The mandibular third molar: its predictive status and role in lower incisor crowding. *Proc Finn Dent Soc* 77:37, 1981.
38. Grondahl, H.G. and Lekholm, M. Influence of mandibular third molars on related supporting tissues. *Int J Oral Surg* 2:137, 1973.
39. Guernsey, L. and De Champlain, R. Sequellae and complications of the intra-oral sagittal split osteotomy. *Oral Surg Oral Med Oral Path* 32:176, 1971.
40. Guralnick, W. Wilkes, J.W., Aschaffenburg, P.H. et al. Incidence of and progressive pathological changes associated with impacted third molar teeth. *J Dent Res 52 (special issue): abstract 1428, 1982.*
41. Guralnick, W. Third molar surgery. *Brit Dent J* 156:389, 1984.
42. Hall, D. Vestibuloplasty and mucosal grafts. *J Oral Surg* 29:786, 1971.
43. Hall, D., Bildman, B. and Hand, C. Prevention of dry socket with local application of tetracycline. *J Oral Surg 29:35, 1971.*
44. Happonen, R., Backstrom, A. and Ylipaavalniemi, P. Prophylactic use of phenoxymethyl penicillin and tinidazole in mandibular third molar surgery: a comparative placebo controlled clinical study. *Brit J Oral Maxillofac Surg* 28:12, 1990.
45. Head, T.W., Bentley, K.C. and Millar, E.P. A comparative study of the effectiveness of

Metronidazol and Penicillin V in eliminating anaerobes from post extraction and bacterimias. *Oral Surg 58:152, 1984.*
46. Hellem, S. and Nordenram, A. Prevention of postoperative symptoms by general antibiotic treatment and local bandage in removal of mandibular third molars. *Int J Oral Surg* 2:273, 1973.
47. Hellman, M. Our third molar teeth: their eruption, presence and absence. *Dental Cosmos* 78:750, 1936.
48. Holland, C.S. and Hindle, M.O. The influence of closure or dressing on third molar sockets on post-operative swelling and pain. *Br J Oral Maxillofac Surg* 33:65, 1984.
49. Holland, C.S. The influence of methylprednisilone on postoperative swelling following oral surgery. *Brit J Oral Maxillofac Surg* 25:293, 1987.
50. Hooley, J.R. and Francis, F.H. Dexamethasone in Traumatic Oral Surgery. *J Oral Surg* 27:398-403, 1969.
51. Hooley, J.R. and Hohl, T.H. The use of steroid in the prevention of some complications after traumatic oral surgery. *J Oral Surg 32:864, 1974.*
52. Howe, G.L. and Poyton, H.G. Prevention of damage to the inferior dental nerve during the extraction of mandibular third molars. *Brit Dent J* 109:355, 1960.
53. Howe, G.L. *Minor oral surgery* Ed. 3 Bristol, Wright, 1985.
54. Huann, S., Hutton, C., Kafrawy, A., et al. Comparison of meclofenamate sodium and hydrocortisone for controlling the postsurgical inflammatory response in rats. *J Oral Maxillofac Surg* 46:777, 1988.
55. Kipp, D.P., Goldstein, B.H. and Weiss, W.W. Dysesthesia after mandibular third molar surgery: A retrospective analysis of 1,377 surgical procedures. *JADA* 100:185, 1980.
56. Krekmanov, L. Nordenram. Post-operative complications after surgical removal of mandibular third molar – Effect of penicillin and Chlorhexidine. *Int J Oral Maxillofac Surg* 15:25, 1986.
57. Krekmanov, L. Alveolitis after operative removal of third molars in the mandible. *Int J Oral Surg 10:173, 1981.*
58. Kugelberg, C.F., Ahlstrom, U., Ericson, S., et al. Periodontal healing after impacted lower third molar surgery: A retrospective study. *Int J Oral Surg* 14:29, 1985.
59. Kugelberg, C.F., Ahlstrom, U., Ericson, S., et al. Periodontal healing after impacted lower third molar removal in adolescents and adults. *Int J Oral Maxillofac Surg* 20:18, 1991.
60. Laskin, D.M. Evaluation of the third molar problems. *JADA* 82:824, 1971.
61. Lekholm, V., Adell, R., Lindhe, J., et al. Marginal tissue reaction at osseointegrated titanium fixtures. *Int J Oral Maxillofac Surg* 15:53, 1986.
62. Leone, S.A., Edenfield, M.J. and Cohen, M.E. Correlation of acute pericoronitis and the position of the mandibular third molar. *Oral Surg 62:245, 1986.*
63. Lilley, G.E., Osborn, D.B., Rael, E.M., et al. Alveolar osteotis associated with mandibular third molar extractions. *JADA* 88:802, 1974.
64. Lindquist, B. and Thilander, B. Extraction of third molars in cases of anticipated crowding of the lower Jaw. *Am J Ortho* 81:130, 1982.
65. Linnberg, W.B. The clinical evaluation of dexamethasone in oral surgery. *Oral Surg* 20:6-28, 1965.
66. Lysell, L. and Rohlin, M. A study of indications used for removal of the mandibular third molar. *Int J Oral Maxillofac Surg* 17:161, 1988.
67. Lytle, J.J. Indications and contraindications for the removal of the impacted tooth. *Dent Clin N Am* 23:333, 1979.
68. MacGregor, A.J. and Addy, A. The Value of penicillin in the prevention of pain, swelling and trismus following removal of ectopic mandibular third molars. *Int J Oral Surg* 9:166, 1980.
69. MacGregor, A.J. *The impacted lower wisdom tooth.* Oxford University Press, 1985.
70. MacGregor, A.J. Discussion. The relationship between the indications for surgical removal of impacted third molars and the incidence of alveolar osteitis. *J Oral Maxillofac Surg* 49:145, 1991.
71. Mason, D.A. Lingual nerve damage following lower third molar surgery. *Int J Oral Maxillofac Surg 17:290, 1988.*
72. Messer, E. and Keller, J. The use of intraoral dexamethasone after extractions of mandibular third molars. *Oral Surg Oral Med Oral Path* 40:594. 1975.
73. Middlehurst, R.J., Barker, G.R. and Rood, J.P. (1988) Post-operative morbidity with mandibular third molar surgery: a comparison of two techniques. *Maxillofac Surg* 46:474.
74. Mitchell, D.A. A controlled clinical trial of tinidazole for chemoprophylaxis in third molar surgery. *Brit Dent J.* 160:284, 1986.
75. Moller, T.F. and Petersen, J.K. Efficacy of a fibrin sealant on healing of extraction wounds. *Int J Oral Maxillofac Surg.* 17:142, 1988.
76. Montgomery, M., Hogg, J., Roberts, D.,et al. The use of glucocorticosteroids to lessen the inflammatory sequelae following third molar surgery. *J Oral Maxillofac Surg* 48:179, 1990.
77. Mourshed, F. A roentgenographic study of dentigerous cysts. *Oral Surg.* 18:47, 1964.
78. NIH Consensus development conference on removal of third molars. *J Oral Surg* 38:235, 1980.
79. Nitzan, D.W. On the genesis of dry socket. *J Oral Maxillofac Surg 32:706, 1983.*
80. Nitzan, D., Keren, T. and Marmary, Y. Does an impacted tooth cause root resorption of the adjacent one? *Oral Surg 51:221, 1981.*
81. Nordenram, A., Hultin, M., Kjellman, O., et al. Indication for surgical removal of third molars: Study of 2630 cases. *Swed Dent J II:23, 1987.*
82. Oberman, M., Horowitz, I. and Raymond, I. Accidental displacement of maxillary third molar. *Int J Oral Maxillofac Surg* 15:756, 1986.
83. Osborn, T.P., Frederickson, G., Small, I.A., et al. A prospective study of complications related to third molar surgery. *J Oral Maxillofac Surg* 43:767, 1985.
84. Otten, J.E., Peltz, K. and Christmann, G. Anaerobic bacteremia following tooth extraction and removal of osteosynthesis plates. *J Oral Maxillofac Surg* 45:477, 1987.
85. Pedersen, A. Decadron phosphate in the relief of complaints after third molar surgery. *Int Journal Oral Surg* 14:235-240, 1985.
86. Pedersen, A., and Maersk-Moller, O. Volumetric determination of extra-oral swelling from stereophotographs. *Int J Oral Surg* 14:229, 1985.
87. Petersen, J.K., Crogsgaard, J., Nielsen, K.M., et al. A comparison between two absorbable haemostatic agents: gelatin songe and cellulose. *Int J Oral Surg* 13:406, 1984.
88. Piironen, J., Ylipaavalniemi, P. Local predisposing factors and clinical symptoms in pericoronitis. *Proc Finn Dent Soc.* 77:278, 1981.
89. Poswillo, D. Surgical options for third molars: a review. *J Royal Soc of Medicine* 74:911, 1981.
90. Pullinger, A. and Monteiro, A. History factors associated with symptoms of temporomandibular disorders. *J Oral Rehab* 15:117.
91. Rantanen, A. The age of eruption of third molar teeth. *Acta Odont Scand* Suppl. 48, 1961.
92. Regezi, J.A., Kerr, D.A. and Courtnex, R.M. Odontegenic tumors: analysis of 706 cases. *J Oral Surg.* 36:771, 1978.
93. Responses to Stephens et al. *J Canad Dent Assoc 55:453; 55:662, 1989.*
94. Richardson, E.R., Malhotra, S.K. and Semenya, K. Longitudinal study of three views of mandibular 3rd molar eruption in males. *Am J Ortho* 86:119, 1984.
95. Richardson, M.E. The aetiology and prediction of mandibular third molar impaction. *Angle Ortho* 47:165, 1977.
96. Richardson, M.E. The development of third molar impaction and its prevention. *Int J Oral Surg* 10: suppl. I, 122, 1981.
97. Richardson, M.E. Lower molar crowding in the early permanent dentition. *Angle Ortho* 55:51, 1985.
98. Richardson, M.E. Lower third molar space. *Angle Ortho* 57:155, 1987.
99. Richardson, M.E. The role of the third molar in the cause of late lower arch crowding: a review. *Am J Orthod Dentofac Orthop* 95:79, 1989.
100. Rickets, R. A principle of arcial growth of the mandible. *Angle Ortho* 42:638, 1972.
101. Rickets, R. Studies of the practice of abortion of lower third molars. *Dent Clin N America* 23:393, 1979.
102. Ritzau, M. The prophylactic use of transexamic acid on ASD. *Int J Oral Surg* 2:196, 1973.
103. Rood, J.P. Lingual split technique. *Br Dent J* 154:402, 1983a.
104. Rood, J.P. Degrees of injury to the inferior alveolar nerve. *Brit J Oral Surg* 21:103, 1983b.
105. Rosovsky, L.E. *Canadian Dental Law* Butterworths, p. 27, Toronto, 1987.
106. Rud, J., Baggeson, H., Floe, M., et al. The effect of sulfa cones and suturing on the incidence of pain after removal of impacted third molars. *Int J Oral Surg* 21:219, 1963.
107. Rud, J. The split bone technique for removal of impacted mandibular third molars. *J Oral Surg* 28:416, 1970.

108. Rud, J. Third molar surgery: relationship of root to mandibular canal and injuries to inferior dental nerve. *Danish Dent J* 87:619, 1983.
109. Seddon, H.J. Three types of nerve injury. *Brain* 66:237, 1943.
110. Sewerin, L. and von Wowern, N. A radiographic four year follow-up study of asymptomatic mandibular third molars in young adults. *Int Dent J* 40:24, 1990.
111. Schofield, D.F., Kogon, S.L. and Donner, A. Long term comparison of two surgical flap designs for third molar surgery of the periodontal tissues of the second molar tooth. *J Canad Dent Assoc* 54:689, 1988.
112. Schow, R.R. Evaluation of post-operative localized osteitis in mandibular third molars surgery. *Oral Surg 38:352, 1974.*
113. Shafer, W.G., Hine, M.R. and Levy, B.M. *A textbook of oral pathology Ed. 4, Philadelphia, W.B. Saunders, 1984.*
114. Shanley, S.S. The influence of mandibular third molars on mandibular anterior teeth. *A J Ortho* 48:786, 1962.
115. Shear, M. and Singh, S. Age-standardized incidence rates of ameloblastoma and dentigerous cyst on the Witwatersrand. *Community Dent Oral Epid* 6:195, 1978.
116. Schliephake, H. and Neukam, F. Periodontal damage to third molars prior to transplantation. 18:55, 1989.
117. Schwarze, C.W. The influence of third molar germectomy: a comparative long term study. Trans 3rd Int Orthodontic Cong. ed J.T. Cook. Staples. London. p. 551, 1975.
118. Sisk, A. and Bonnington, G. Evaluation of methylprednisilone and flurbiprofen for inhibition of the postoperative inflammatory response. *Oral Surg* 60:137, 1985.
119. Shteyer, A., Lustmann, N.J. and Lewin-Epstein, J. The muralameloblastoma: a review of the literature. *J Oral Surg 36:866, 1978.*
120. Sowray, J.H. An assessment of the value of lyophilised chymo trypsin in reduction of post-operative swelling after removal of impacted wisdom teeth. *Brit Dent J* 110:130, 1961.
121. Stanley, H.R., Alatter, M., Collett, W.M. et al. Pathological sequelae of «neglected» impacted third molar. *Oral Surg* 64:567, 1987.
122. Stephens, J.R., App, G.R. and Foreman, D.W. Periodontal evaluation of two mucoperiosteal flaps used in removing impacted third molars. *J Oral Maxillofac Surg* 42:719, 1983.
123. Stephens, R.G., Kogon, S.L. and Reid, J.A. The unerupted or impacted third molar: a critical appraisal of its pathologic potential. *JCDA* 55:201, 1989.
124. Svendsen, H., Malmskov, O. and Bjork, A. Prediction of lower third molar impaction from the frontal cephalometric projection. *Euro J Ortho* 7:1, 1985.
125. Swanson, A.E. Reducing the incidence of dry socket: a clinical appraisal. *J Canad Dent Assoc* 32:25, 1966.
126. Swanson, A.E. Removing the mandibular third molar: Neurosensory deficits and consequent litigation. *J Canad Dent Assoc* 55:383, 1989a.
127. Swanson, A.E. Double blind studies on the effectiveness of tetracycline in reducing the incidence of fibrinolytic alveolitis. *J Oral Max Fac Surg* 47:165, 1989b.
128. Szmyd, S. and Hester, W.R. Depth of the second molar in impacted third molar surgery, 1963.
129. Tulloch, J., Antezak-Boukons, A. and Wilkes, J. The application of decision analysis to evaluate the need for extraction of asymptomatic third molars. *J Oral Maxillofac Surg* 45:855, 1987.
130. Van Gool, A.V. and Ten Bosch Boering, G. Clinical consequences of complaints and complications after removal of mandibular third molars. *Int J Oral Surg* 6:32, 1977.
131. Van Gool, A.V. and Ten Bosch Boering, G. A photographic method of assessing swelling following third molar removal. *Int J Oral Surg* 4:121, 1975.
132. Vego, L. A longitudinal study of mandibular arch perimeter. *Anglo Ortho* 32:187, 1962.
133. Von Arx, D.P. The effect of dexamethasone on neurapraxia following third molar surgery. *Brit J Oral Maxillofac Surg* 27:477, 1989.
134. von Wowern, N. and Nielsen, H.O. The fate of impacted lower third molars after the age of 20: a four year clinical follow-up. *Int J Oral Maxillofac Surg 18:277, 1989.*
135. Waldron, C.A. and Mustoe, T.A. Primary intraosseous carcinoma of the mandible with probable origin in odontogenic cyst. *Oral Surg* 67:716, 1989.
136. Ward, T.G. The split bone technique for removal of impacted mandibular third molars. *J Oral Surg* 28:416, 1956.
137. Weir, J.C., Davenport, W.D. and Skinner, R.L. Diagnostic and epidemiologic survey of 15,783 oral lesions. *JADA* 115:439, 1987.
138. Weiss, J., Yablon, P. and Milton, J. The third molar question: to extract or not to extract. *J Dent for Children* 21:277, 1984.
139. Winkler, S. and von Wovern, N. Displacement into maxillary sinus or infratemporal fossa of maxillary third molars. *J Oral Surg 35:130, 1977.*
140. Wofford, D.T. and Miller, R.J. Prospective study of dysesthesia following odontectomy of impacted mandibular third molars. *J Oral Maxillofac Surg 45:15, 1987.*
141. Woolf, R.H., Malmquist, J.P. and Wright, W.H. Third molar extractions; periodontal implications of two flaps design. *Gen Dent 52:6, 1978.*
142. Worth, H.M. *Principle and practice of oral radiologic interpretation.* Chicago. Year Book med Publishers Inc. p. 77, 1969.
143. Wuerhmann, A.H. and Manson-Hing, S.R. *Dental radiograph* Ed. 5 St. Louis, C.V. Mosby, 1981.
144. Zeigler, R.S. Preventive dentistry new concepts: preventing periodontal pockets. *Va Dent J* 52:11, 1975.



TYLENOL*
acetaminophen

A LOGICAL FIRST CHOICE

ACTIONS:
Acetaminophen is an analgesic and antipyretic.

INDICATIONS:
TYLENOL* acetaminophen is indicated for the relief of pain and fever. Also as an analgesic/antipyretic in the symptomatic treatment of colds.

CONTRAINDICATION:
Hypersensitivity to acetaminophen.

ADVERSE EFFECTS:
In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:
Resuscitation and supportive care must proceed as for any other potentially serious overdose. In acute overdose, serum levels of acetaminophen are meaningful in predicting those patients likely to develop serious hepatic toxicity. They must be drawn between 4 and 24 hours post overdose and the values plotted on the Matthew-Rumack Nomogram. N-acetylcysteine (N.A.C.) is a highly effective antidote for acetaminophen poisoning. Do not delay administration of N.A.C. either by parental or oral routes if the ingested dose is likely to be toxic (> 150 mg/kg ingested) or if serum levels are in the toxic range on the Nomogram. N.A.C. must be administered prior to the 24th hour post overdose to be protective. Further details on therapy of acetaminophen overdose are available by calling your regional Poison Control Centre.

DOSAGE:
Adults: 650 to 1000 mg every 4 to 6 hours, not to exceed 4000 mg in 24 hours.

SUPPLIED:
TYLENOL* Caplets 325 mg: Each white caplet, scored on one side and engraved "TYLENOL" other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50† and 100 caplets.

TYLENOL* Tablets 325 mg: Each round, white tablet, scored on one side and engraved "TYLENOL" other side, contains 325 mg acetaminophen. Available in bottles of 24†, 50†, 100 and 500 tablets.

TYLENOL* Caplets 500 mg: Each white caplet engraved "TYLENOL" on one side and "500" other side, contains 500 mg acetaminophen. Available in bottles of 24†, 50 and 100† caplets.

TYLENOL* Tablets 500 mg: Each round, white tablet, engraved "TYLENOL" one side, and "500" other side contains 500 mg acetaminophen. Available in bottles of 30†, 50 and 100 tablets.

TYLENOL* Gelcaps 500 mg: Each solid capsule-shaped tablet, coated with red gelatin on one end and yellow on the other, printed "TYLENOL/500" on each gelatin coated end, contains: 500 mg acetaminophen. Available in bottles of 24† and 50 gelcaps.

†Package is child-resistant.

McNEIL
McNEIL CONSUMER PRODUCTS COMPANY
GUELPH, CANADA N1K 1A5
*Trademark
PAAB CCPP
ATY-EJ-05/91

CDA Access Ads

CDA ACCESS ADS offer guaranteed* access to Canada's largest audience of dentists. To place your ad, call OLA MURPHY toll-free across the country at **(800) 661-5004**. In the Toronto calling area, please dial **(416) 278-6700.**

**If you are not satisfied with the results of your ACCESS AD, we will offer you your money back in the form of a credit for future use. Please call for more information.*

Replying to a CDA Access Box Number?
Simply write to:
CDA Access Box ___,
1382 Hurontario St.,
Mississauga, Ont. L5G 3H4.
Or you may fax your reply to (416) 278-4850, noting the appropriate box number.

Offices & Practices

BRITISH COLUMBIA - Southern: General family practice with a preventative emphasis. Independently evaluated and appraised as being unsurpassed in quality. Located in brand new office building. Dental office occupies 2,000 sq. ft. on main floor with a 2,000 sq. ft. basement, yearly gross approximates $800,000. Could easily accommodate two hard-working dentists. Great support staff. Owner returning for postgraduate training. Please reply to CDA ACCESS Box 2526. (10/10)

BRITISH COLUMBIA - Central: Small town, great outdoors. Well established, busy, computerized general practice for sale. Excellent staff, five operatories, lab, panorex. Solo practitioner grossing $550,000 without hygienist. Selling for less than annual net. Retiring, but willing to stay on part time to facilitate the transfer. Reply to CDA ACCESS Box 2549. (09/02)

FOR INFORMATION ON B.C. DENTAL PRACTICES FOR SALE CALL
Health Pro Management Ltd.
17335 - 59th Ave,
Surrey, B.C. V3S 1N9
tel (604) 576-2866 fax(604) 576-9180

B.C. - Vancouver Suburbs
Pediatric practice - established Ortho/Pedo practice. Tastefully decorated office with four operatories and central nitrous.
Excellent opportunity for growth.
Medi-Dent Professional Services
Have over 20 practices for sale in B.C.
For more information
— photos — or videos
Contact: Al Heaps (604) 669-9857.(06/10)

NORTH VANCOUVER
Computerized family practice, three operatories, central location, high income and economically stable area. Call evenings **(604) 926-6777.** (09/10)

ALBERTA - Red Deer: "The heart of the parkland." Well established family practice with solid patient base and good recall. Three modernly equipped operatories and panograph. Located in professional building adjacent to regional hospital, excellent lease. Long-standing supportive staff. Practitioner planning postgrad studies. Dr. D. Crowe (403) 342-5135 after 6 p.m. (07/10)

ALBERTA - Edmonton: Growing general practice for sale. Three operatories, panorex. 1,400 sq. ft., stripmall location, recent renovations. Owner relocating. Practice statistics and equipment inventory available upon request. Phone (403) 469-3250 after 6:00 p.m. (09/10)

ALBERTA - Edmonton: Newly established rapidly growing two-and-a-half-year-old practice for sale in desirable southwest neighborhood of city. Office beautifully decorated with state-of-the-art equipment, four operatories and hygiene room. Good gross, very reasonable asking price. Owner wishes to retire. For more information phone (403) 438-6200. (09/10)

ALBERTA - Edmonton: Busy practice for sale; 2,500 sq. ft.; six ops. (four full, two hygiene); more plumbed. Part-time associate. Owner moving. (403) 465-0995.(10/11)

ALBERTA - Calgary: Family dental practice with great potential in a new residential area. Please reply to CDA ACCESS Box 2553.(10/10)

SASKATCHEWAN - Saskatoon: Superb location, eight-year-old dental practice for sale, 1,600 sq. ft. of beautiful new decor, excellent income, dentist relocating. Reply to CDA ACCESS Box 2550. (09/11)

ONTARIO - Niagara Peninsula: General practice, professionally appraised, with five operatories in 1,500 sq. ft. Two hygienists and denture therapist help support two full-time dentists. Associateship available first if desired. Call Sandy after 6 p.m. (519) 657-3035. (06/10)

MAPLE - ONTARIO
20 minutes north of Toronto, three-year-old dental practice for sale. Beautifully located in a professional building in the centre of a wealthy growing community. Two ops. fully equipped and third wired. Sitting area with marble floors and t.v., low overhead, good referrals and excellent opportunity. Call Pina mornings (416) 787-5557, evenings until 10:00 & weekends (416) 737-9332. (07/11)

ONTARIO - CALEDON
Practice For Sale
Newly renovated, 650 sq. ft., 2 operatories, dental office in plaza. **Very reasonably priced**, ideal for recent grad. Call Dr. Osuch (416) 270-8652 (Mon-Fri., 9-5). (07/10)

ONTARIO REGION
Growing country practice.
Located near two major towns, with excellent potential. Investment of only $95,000 enables you to start practice immediately with a cash flow. Computerized. Please reply to **CDA ACCESS Box 2552.**(10/12)

NOVA SCOTIA: Rural growing family dental practice, one hour from Halifax. Two fully-equipped ops., 900 sq. ft., low overhead, numerous recreational activities available. Located in economically stable growing community. Well priced. Please reply to CDA ACCESS Box 2551. (09/10)

NOVA SCOTIA - Annapolis Valley: Practice for sale in Nova Scotia Annapolis Valley. Very busy family practice, 1,200 sq. ft. office in a medical/dental professional centre. Ultramodern dental set-up, good gross, priced to sell. For more information call (902) 245-5666. (04/13)

NEWFOUNDLAND: General family practice for sale. Hospital setting, serving 10,000. Easily supports two dentists, with a potential satellite clinic. Two state-of-the-art operatories, and a third with X-ray unit. Excellent lease arrangements, owner will assist in transition. Please reply to CDA ACCESS Box 2535. (02/12)

US FORTUNE 500 CO.
Expanding to Pacific Rim Countries. Extraordinary unlimited income featuring time freedom and predictable 3-5 year retirement. Often a viable supplement to your existing career.
Call Viny Dolce at (407) 969-1001 (11/13)

Positions Available/Sought

ORAL & MAXILLOFACIAL SURGEON
Vancouver - B.C.
Associate leading to partnership/purchase. Well established contemporary full-scope practice presents outstanding opportunity. Please reply to **CDA ACCESS Box 2548.** (09/10)

ASSOCIATE WANTED
DR. BARRY R. GOLDBERG
LILLOET, B.C.
REQUIRES F/T ASSOCIATE FOR BUSY FAMILY PRACTICE.
CONTACT ANN (604) 256-4616 OR EVENINGS (604) 256-7162. (09/10)

Selling a practice?

Leasing an office?

Buying equipment?

Renting your vacation property?

To place your

CDA ACCESS AD
just call

OLA MURPHY

Toll-free at
(800) 661-5004.

In Toronto, just dial
(416) 278-6700.

Manitoba

Supervising Clinical Dentist
Brandon, Manitoba

The incumbent is responsible for the quality of dental care provided by mobile dental teams delivering preventive and treatment services to eligible school aged children in an assigned area. Typical duties include performing oral and dental examinations, diagnosis, treatment and evaluation of clinical work performed by auxiliary staff. Travel and overnight stays are involved.

Graduation from an accredited dental school with a license to practice dentistry in Manitoba and some experience in private or public health dentistry. Valid driver's license required. Supervisory experience would be an asset. Affirmative Action will be a factor in the selection process.

This competition will remain open until the position is filled.

Salary: $54,337 - $67,122 per annum, dependent on qualifications
Competition No.: 4236
Apply in Writing to: Manitoba Health
Human Resource Management
602 - 330 Graham Avenue
Winnipeg MB R3C 4A5

An Affirmative Action Employer

ORTHODONTICS
UNIVERSITY OF TORONTO
Faculty of Dentistry

The Faculty of Dentistry, University of Toronto, invites applicants for two full-time, tenure/tenure stream positions in the department of Orthodontics.
Applicants must hold an advanced degree, have specialty certification and have significant clinical, teaching and research experience in Orthodontics and Growth and Development.
Responsibilities will include teaching in the undergraduate and postgraduate Orthodontic programs. The successful candidate will also be expected to participate in appropriate research and other scholarly activities. Private practice privileges are permitted one day per week.
Rank and salary would be commensurate with the candidate's qualifications and scholastic accomplishments.
In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and/or permanent residents. The University of Toronto is committed to employment equity and encourages applications from women, visible minorities, aboriginal peoples and persons with disabilities.
Application letters, accompanied by a detailed curriculum vitae and the names and addresses of three references, should be sent by **December 15, 1992** to:

Chairman, Search Committee
Dean's Office
Faculty of Dentistry
University of Toronto
124 Edward Street
Toronto, Ontario M5G 1G6
Canada

DENTAL PARTNER
Our Vancouver, B.C., Dental Group seeks a talented dentist to join us. The successful person will move rapidly from associateship to full partnership. Our dynamic group seeks an individual who will:
- provide excellent dental care.
- work successfully and harmoniously with seven other partners in our state-of-the-art facility.
- want a long-term position.

This is an opportunity which will provide the right person to become a partner in an exemplary dental practice.
Please contact: Dr. Debra Mitchell
(604) 325-8232. (10/10)

BRITISH COLUMBIA - Pender Island: Well established island practice within large community medical facility requires associate to practice two days per week. Daily commute from Vancouver Island is conveniently available via ferry. Ideal for semi-retired dentist or dentist raising children. Call (604) 732-4314. (07/10)

LOCUM LOCATORS
TRY IT AS
A) REPLACEMENT DENTIST
B) OWNER DENTIST
COLLECT (403) 791-7799.
(07/12)

ALBERTA - Edmonton: Periodontist with well-established, progressive, busy periodontal practice is seeking another Periodontist to join him on a cost sharing or associate basis. Excellent opportunity for capable Periodontist qualified to practise in Alberta. Contact Yvette (403) 436-0108. (01/11)

SASKATCHEWAN - Regina: Seeking dental associate for modern office in large medical/dental facility. Good opportunity for the right person. For details call Dr. Ronald Katz, (306) 924-1494, or write to: 235B Albert Street N., Regina, Saskatchewan S4R 3C2. (08/11)

SASKATCHEWAN
Associate wanted in rural Saskatchewan. Busy general practice in Lanigan urgently requires a full-time associate.
Contact Dr. K. Anaman at (306) 365-3344 or (306) 365-3460 (evening). (09/10)

ASSOCIATE PARTNER
Unique opportunity for qualified Oral & Maxlofacial Surgeon. Well established practice, population drawing area of 200,000, exceptional hospital privileges at three hospitals. **Location Thunder Bay, Ontario, Canada. Call (807) 344-3973, fax (807) 345-3395.** (10/12)

ONTARIO - Ottawa: Bilingual dentist needed for maternity leave from mid January to April 1993. Please call Madeleine (613) 748-0633/0634. (09/10)

ONTARIO - Ottawa: Ottawa south dental office requires another dentist to rent a fully-equipped operatory, share expenses. Part or full time. Call (613) 738-1763. (10/11)

YUKON - Whitehorse: Hygienist needed immediately. Full-time, energetic, devoted hygienist required in a six-operatory preventative practice in booming downtown Whitehorse. Experience is preferred but new grads are welcome. Salary, benefits to be discussed. Serious applicants please, fax resume (403) 668-5121, or leave message at (403) 633-4528. (08/11)

YUKON - Whitehorse: Associate wanted. Full-time or continuing locum needed in a very busy, bright, well-staffed, friendly, six-operatory practice in booming downtown Whitehorse. Ideal opportunity for motivated, hard-working, cheerful individual who wants the best of both worlds - busy patient flow and the beautiful outdoors (skiing, hiking, camping, canoeing, etc.) Serious applicants please, fax resume (403) 668-5121, or leave message at (403) 633-4528. (08/11)

NWT Eastern Arctic
Experienced general dentist required to provide dental services in the Baffin Region. Services are provided up to four times per year each to various communities. A long term commitment is requested. For full details please reply to: **The Iqaluit Dental Clinic, Attn. Dr. C. Pastori, P.O. Box 479, Iqaluit, NWT X0A 0H0 or fax (819) 979-1365.** (10/11)

Equipment Sales, Service

DANSEREAU HEALTH PRODUCTS
CLINIC II

California Chair
All electric, auto return. Reversible cushions, choice of 30 colors.
Delivery System
3-Handpiece automatic foot control, air lock arm, stainless steel tray, 3-way syringe, X-ray view box.
Assistants Package
HVE, saliva ejector, 3-way syringe, cuspidor, manual cup filler, quick disconnect, J-box with controls for easy installation.
Light
Chair mounted light, post plate and cup.

Retail $5,325. Cash Discount $3,995.
We accept Visa & Mastercard.
All prices FOB factory Anaheim.
Manufacturer direct sales for 31 years.

DANSEREAU HEALTH PRODUCTS
559 S. Rose Street
Anaheim, CA 92805
(714) 776-5357
(800) 423-5657 (USA & Canada)
FAX (714) 776-4652 (04/09)

WANTED TO BUY
1 used casting machine and burnout oven.
Please call (604) 383-1137. (09/10)

ALBERTA: For sale. Spaceline for D. Dental Unit includes: chair, light, tray, X-ray, built-in ultrasonic scalar, two high-speed handpieces (handpieces included, one fiber-optic), one slow-speed handpiece (handpiece included), high-volume suction, saliva ejector and cuspidor. Brand new, asking $20,000. Contact: (403) 657-3456 (B), (403) 657-3409 (R). (06/10)

Vacation Rentals

BRITISH COLUMBIA - Whistler: Luxury three bedroom, two bathroom condo at base of Blackcomb, sleeps two - eight; two kings, two twins, one queen, six appliances, TV, VCR, 75-yard walk, then ski to lifts. Call (519) 886-8980 Dr. Clarke. (09/12)

LONDON FLATS
for your London stay. Consider our London flats near the Chelsea Bridge/Battersea Park. Elegantly furnished, centrally located with a 2-hour maid service, Monday through Friday. Flat 18 accommodates five people in three bedrooms with bath/shower and fully equipped kitchen. Flat 16 accommodates three people in two bedrooms, bathroom/shower, lovely lounge and dining room and fully-equipped kitchen. Can arrange theatre tickets. Contact evenings for brochure: **Mr. Thomas Moore, Telephone: (801) 393-9120, Fax: (801) 393-3024; or P.O. Box 12086, Ogden, Utah 84412 U.S.A.** (10/10)

At last you have a better way to access the dental market place. To place your CDA ACCESS AD Call OLA MURPHY at (800) 661-5004 in Toronto, call (416) 278-6700.

Miscellaneous

KEEP YOUR SMILE
The Family Book of Dentistry

A PERFECT REFERENCE BOOK FOR YOUR PATIENTS IN YOUR WAITING ROOM!!

Written by: Dr. D. Kandelman, professor, University of Montreal, in collaboration with Dr. Tom Balanyk, dental researcher and practitioner in Toronto.
Preface by: Dr. L.W. Ripa, professor, State University of New York.
Edited by: RMD International.

This book is also available in French as: "Gardez le Sourire."

MAIL-IN ORDER FORM
(to be completed and returned to **RMD International, P.O. Box 545 Station MontRoyal, Montreal H3P 3C7, Qué.**)
Please include your payment with your order.

Price per unit: $18 GST included
$2 Mailing charges

Name .....
Address .....
Postal code ..... **City** ..... **Province**.....
Specification: English version ..... **French version** .....

BURNED OUT?
Over extended, bored, fed up with your current situation? Use this opportunity and your expertise to become financially independent. Get involved as other professionals have in the U.S. and Canada. Call (416) 332-4501 (10/13)

U.S.A. IMMIGRATION LAW

William Newell Siebert,
Attorney at Law.
307 North Michigan Avenue,
Suite 915, Chicago, Illinois 60601
312-329-0646

Practice limited to U.S. Immigration Law Since 1969 (10/12)

Meetings & Announcements

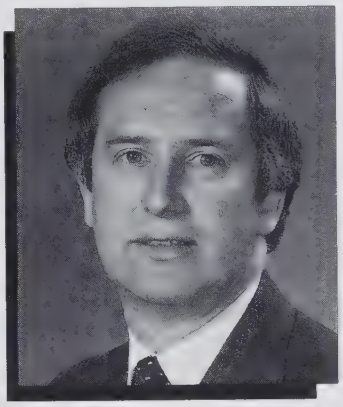
THE 14th ANNUAL FLORIDA DENTAL MEDICAL LEGAL & PEDIATRIC MEETING, BOCA RATON, FLORIDA

Place - Embassy Suites Hotel, Boca Raton, Florida
Dates - Dec. 21, 1992 - Jan. 2, 1993
Fee - $250 (US) by Oct. 15 1992
$275 (US) after Oct. 15, 1992
Sponsored by
The Florida Health Seminars
*15 hours of continuing dental education credits available.
Special hotel rates, air rates, and car rental rates available.
For information please contact seminar co-ordinator:
Linda Golnick, 4818 South Knoll Court, West Bloomfield, Michigan 48232 U.S.A. (313) 681-0211 (08/10)

AGD POLICY NOT BASED ON SCIENCE

In my opinion, a watershed event has occurred in dentistry.

The Academy of General Dentistry (AGD), which represents approximately 30,000 North American dentists, has adopted a policy that advocates the heat sterilization of all instruments between patients. There are a number of reasons why this edict is significant.



Dr. John Hardie

First, the AGD policy, viewed from an infection control perspective, is completely unnecessary. The natural protection provided by saliva and oral mucosa dictates that dental instruments, when used in the mouth, have different potentials for transmitting disease. For example, an invasive extraction forceps is more likely to spread disease than a passive, non-invasive impression tray. On this basis, only instruments that invade into sterile tissue must be sterilized.

Second, in spite of admitting that there is no evidence of cross-contamination from dental handpieces, AGD is advocating the heat sterilization of such devices. This illustrates confusion among AGD officials. Should they adopt a statement on handpieces that recognizes that these devices are not vectors of disease transmission, and that they are technically difficult to sterilize? Or, should they accept recent conjecture with respect to handpieces, which implies that handpieces are vectors of disease transmission, and that their sterilization will significantly reduce the rate of infectious disease transmission in dental practice?

AGD's policy indicates that the latter alternative was chosen. This means that the academy has sanctioned a technical aspect of the practice of dentistry for which there is no scientific validation. Indeed, AGD justifies its decisions by quoting the infection control policies of the Centers for Disease Control and the American Dental Association. Ironically, both organizations suffer from the same "Emperor's Clothes" syndrome as AGD.

A third galling aspect of the AGD announcement is that it establishes a precedent for standards of practice that is based on political, media, and public perceptions – but not valid scientific research. We did not permit public hysteria to influence our reasoned position during the amalgam and fluoride controversies.

However, perhaps the most significant aspect of the AGD decision is that, today, due to political expediency, some professional associations may be more concerned with form than substance. After all, a prominent dental official has remarked: "We don't worry about OSHA. It doesn't have enough inspectors to do any real harm." Such a philosophy does little to inspire confidence or integrity.

If associations, in matters of infection control, are beginning to respond to public perception rather than scientific reality, a watershed event has occurred. Under such circumstances, ethical and thoughtful dentists have a responsibility to ensure that their opinions and concerns are heard.

J. Hardie, BDS, M.Sc., FRCD(C), FICD(C)
Head, Department of Dentistry,
Vancouver General Hospital

A New Approach in Functional Orthopedics

Twin Block Appliances

Over their history, the functional appliances used in orthodontic correction and TMJ treatment have undergone a tremendous evolution. In their earliest form, they were both bulky and cumbersome – so much so that patient cooperation, even with nighttime wear, was almost impossible to obtain.

Recognizing the problems, innovators modified these appliances, reducing their bulk by removing palatal acrylic and using wire components. Yet, while these steps increased appliance flexibility, they also made them more vulnerable to fracture. And they didn't provide an optimal solution in terms of esthetics or patient comfort, either.

Most important perhaps, while the occlusal inclined plane is the functional mechanism of natural dentition, none of these early appliances used it as the mechanism for the correction of malocclusion.

Now, with the Twin B Lock Technique developed by Dr. William Clark of Scotland, a whole new concept in functional orthopedics is available.

Designed for 24 Hour a Day Wear

Unlike conventional functional appliances, where upper and lower components are joined together, Twin Block Appliances permit the patient to eat, speak and function normally. This makes it possible to harness the forces of occlusion and mastication, thus maximizing the functional response to treatment. Yet, movements of the tongue, lip and mandible are not restricted, and the mandible is prevented from returning to the retrusive position during sleep.

Excellent Patient Acceptance and Cooperation

Twin Block appliances are constructed for optimal esthetics without anterior wires or cheek and lip pads. In fact, patient appearance actually improves on appliance insertion. Lingual extentions are eliminated, ensuring patient comfort. And, dental changes are just as dramatic as the improvement in patient profile. In fact, even severe malocclusions show significant improvement, often within a month of treatment.

Mr. H.J. (Hyo) Maier, RDT

Truly Flexible Technique

Whether it is used for arch development, mandibular repositioning, deep overbite correction, or in a combined technique to maximize skeletal correction or to detail the occlusion, Twin Block appliances offer the full range of treatment options needed for orthodontic correction.

In TMJ cases, Twin Block appliances can be used in place of a splint in phase I therapy to reduce pain and symptoms, and to initiate correct mandibular position. Active treatment can start immediately in moving teeth, repositioning the mandible and correcting the vertical. With the Twin Block technique, overall treatment time is shortened, as Phase I and Phase II can be accomplished simultaneously. ■

Mr. H.J. (Hyo) Maier, RDT, is president of Aurum Ceramic/Classic Dental Laboratories Ltd.

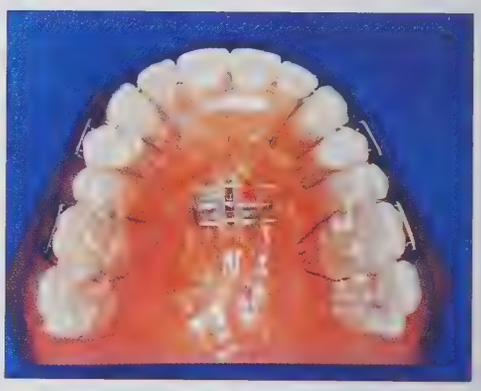


***Fig. 1:** Upper model with expansion screwed closed.*

***Fig. 2:** Lower model with lower portion of appliance.*

ORAL-B INDICATOR™ TOOTHBRUSH. THE PERSONAL REPLACEMENT SIGNAL.

Most of you suggest changing a toothbrush about every three to four months.

But patients have a tendency to keep their brushes splayed beyond recognition.

Until now.

Presenting the one and only Oral-B INDICATOR™ toothbrush.

It actually tells your patients when it's time to be replaced (of course, this will vary depending on personal brushing habits and techniques).

When the blue band of INDICATOR™ bristles fades halfway from top to bottom, roughly in three months, it's the signal that the toothbrush has called it quits. It's worn out. Tired.

Now for the first time ever, there's a toothbrush that actually helps patients act on your recommendations.

Oral-B INDICATOR™ toothbrush.

Oral-B®
INDICATOR™

WE'RE NOT SUGGESTING THAT CHEWING GUM SHOULD REPLACE BRUSHING AND FLOSSING. But Trident sugarless gum is serious about dental care. Serious enough to fund dental research and development, year after year. Serious enough to formulate Trident with 15% xylitol, the natural sweetener that decay-causing bacteria can't metabolize. And Trident's great taste makes it a welcome alternative to sugary snacks. So make a valuable addition to your patients' oral care program. Recommend Trident with xylitol. The gum that dental professionals can take seriously. Call **1-800-263-9060*** to order Trident for your patients. 180 packages of gum for $40.00, a 60% savings. Delivery in 2 weeks. *Call 9 am - 5 pm E.S.T.

vember
vembre
92
58
11

JOURNAL

anadian
ental
ssociation

'Association
entaire
anadienne

undeliverable
Addressee
ETURN TO SENDER
eturn Postage
uaranteed

non livrable
u destinataire
ETOURNER À
'EXPEDITEUR
ort Payé

What's so distinctive about Ash Temple service?

At Ash Temple, we recognize that when you need supplies, or your equipment malfunctions, you can't afford to wait. You need fast, efficient response.

That's why it's good to know you can rely on the people at Ash Temple.

Ash Temple's team of experts is composed of people who combine seasoned experience with the latest knowledge of industry developments.

Our service commitment is a combination of three important elements:

- An outstanding dedication to promptness and efficiency on the part of all our staff from coast-to-coast.
- A distribution infrastructure devoted to providing consistent reliability with high order fill rates unrivalled in Canada.
- An enviable reputation earned over years of service to the Canadian dental profession.

Ash Temple can provide the service you require from within your local community.

Call us. We're there when you need us.

Ash Temple LIMITED

Keeping you a step ahead.

John T. Rees, Victoria Branch Mgr. With Ash Temple since 1957.

Christine Park, Customer Service Rep. With Ash Temple since 1986.

The Ash Temple Companies — Ash Temple Limited, Servident, A-Tech, Microbex Aseptics, Acrylium

ASH TEMPLE SERVICES:

Ash Temple has 14 strategically located, full-service depots — Halifax, Saint John, Quebec, Montreal, Ottawa, Toronto, Hamilton, London, Winnipeg, Regina, Calgary, Edmonton, Vancouver, Victoria

In addition, there are sales and service staff located in 11 other communities across Canada.

All locations stock over 100,000 consumable items.

Ash Temple can assist you to —

- locate dental practice sites
- search for associates
- secure staff
- design your office
- help in selling your practice

Ash Temple's Equity Program allows you to set up a convenient schedule for delivery of supplies with a variety of payment options, volume discounts and rebate plans.

The annual Ash Temple Equity Grant supports dental associations and dental faculties of Canadian Universities.

November 1992

JOURNAL

JOURNAL STAFF

Executive Director
A. Jardine Neilson

Editor
Dr. P. Ralph Crawford

Managing Editor
Terence Davis

Assistant Editor, Art Production
Louise Després Jones

Assistant Editor, Production
Antonia Papadakou

Scientific Editor (English)
Dr. Robert S. Turnbull

Scientific Editor (French)
Dr. Pierre C. Desautels

CONSULTING EDITORS

Anesthesiology
Dr. Earle Young

Dental Materials
Dr. Peter T. Williams

Medicine
Dr. George K.B. Sandor

Forensic Dentistry
Dr. Robert Dorion

Infection Control
Dr. John Hardie

Pharmacology
Dr. David M. Paton

Practice Management
Dr. Bob Brandon

Nutrition
Mrs. Nina Burgess

Canadian Dental Hygienists Association
Ms. Carole Worobey

Canadian Dental Assistants Association
Ms. Diane Pike

SPECIALTY EDITORS

Endodontics
Dr. W.H. (Bill) Christie

Oral Maxillofacial Surgery
Dr. David S. Precious

Oral Pathology
Dr. J.H.P. Main

Orthodontics
Dr. K.E. Glover

Pedodontics
Dr. Victor Legault

Periodontics
Dr. James E. (Jim) Stakiw

Prosthodontics
Dr. Michael MacEntee

Public Health
Dr. Donald Lewis

Radiology
Dr. Colin Price

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa, Ont.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds. In Canada - $48 (+ GST); United States - $53; all other - $58. Subscriptions are for 12 issues, not necessarily conforming with the calendar year. All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the *Journal*. Publication of an advertisement does not necessarily imply that the Canadian Dental Association agrees with or supports the claims therein.

ISSN 0709 8936

PRINTED IN CANADA

Call CDA for information and assistance toll-free at:

1-800-267-6354

CDA FAX Nos: 1-613-523-7736
1-613-523-5891

All matters pertaining to advertising should be directed to:

Keith Health Care Communications
1382 Hurontario Street
Mississauga, Ont. L5G 3H4
ATTN: Trish Sullivan
Advertising Representative,
or, Ola Murphy
CDA Access Representative

Tel: (416) 278-6700
Fax: (416) 278-4850

Member

American Dental Editors' Association
Canadian Circulations Audit Board

CDA MISSION STATEMENT

The Canadian Dental Association is the authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada, — dedicated to meeting member needs, and the promotion and provision of optimal oral health for Canadians.

The Journal of the Canadian Dental Association is published in both official languages except scientific articles which are published in the language in which they are received. Readers may request the Journal in the language of their choice.

CDA EXECUTIVE COUNCIL

President
Dr. B. Dolansky
Ottawa, Ontario

Past President
Dr. L.S. Allen
Winnipeg, Manitoba

President-Elect
Dr. R. Wenn
Charlottetown, P.E.I.

Vice-President
Dr. B. Sigfstead
Edmonton, Alberta

Dr. J. Brookfield
Kirkland Lake, Ontario

Dr. B. Dolman
Montréal, Québec

Dr. J. Diggens
Vancouver, B.C.

Dr. T. Gushue
St. John 's, Nfld.

Dr. B.E. White
Saskatoon, Saskatchewan

Dr. D. Sandilands
Edmonton, Alberta

CDA STAFF

1815 Alta Vista Drive,
Ottawa, Ontario KlG 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Executive Director
A. Jardine Neilson

Manager, Executive Services
Sandra Déziel

Coordinator, Board and Executive
Suzanne Burton

PROFESSIONAL SERVICES

Director, Education and Accreditation and Professional Services
Brian Henderson

Associate Director, Education and Accreditation
Susan Matheson

Coordinator, Accreditation
Gay MacQuarrie

Coordinator, DAT
Danuta Askew

Coordinator, Purchaser Information Program
Coordinator, CDAnet
Patricia Duminy

ADMINISTRATION

Director of Administration
Joel R. Neal

Manager, Human Resources
Shelagh Dunlop

Secretary, Membership
Lydia Allison

COMMUNICATIONS

Director of Communications
Linda Teteruck

Librarian
Martha Vaughan

Manager, Membership Services
Carol Anne St. Laurent

Manager, Information Services
Lisa Burke

It's history.

Introducing

The Saddle-Lock® Hidden Clasp Partial Denture

The Ultimate In Partial Denture Esthetics

...now available in Titanium

In this era of cosmetic dentistry, when patients are increasingly conscious of their appearance, there is no place for unsightly facial clasps. Saddle-Lock makes these clasps obsolete and offers both you and your patient tremendous improvements over conventional partial denture design:

Improved Retention–Saddle-Lock uses the mesial or distal undercuts to eliminate buccal clasps. By using the Retentoscope®, the technician can precisely determine the ideal depth of the undercuts, eliminating guesswork and adjustments.

No Major Tooth Preparation–Before Saddle-Lock, the only way to eliminate clasps was through precision attachments, crowning or other methods requiring major recontouring of abutment teeth. Saddle-Lock eliminates this and helps prolong the life of abutment teeth by strategically placing stress so torque on abutment teeth is minimized.

Greater Patient Satisfaction–Saddle-Lock is a completely hidden clasp cosmetic partial denture, so your patients can smile, talk and chew with greater confidence.

5 Year Guarantee–Every Saddle-Lock partial made or fabricated by Aurum Ceramic Dental Laboratories comes with a 5 year guarantee on workmanship and materials.

Now Available In Titanium–The Saddle-Lock® Design can now be cast in a new titanium alloy, offering the strength, light weight, low thermal conductivity and bio-compatibility of the space age metal, titanium.

Don't use another Clasp–Give your patients the esthetics and fit of Saddle-Lock.

AURUM CERAMIC DENTAL LABORATORIES LTD.

CLASSIC DENTAL LABORATORIES LTD.

Victoria	Vancouver	Kelowna	Vernon	Calgary	Edmonton	Saskatoon	Ottawa
1-800-663-6364	(604) 874-3451 1-800-663-1721	1-800-667-4146	(604) 542-5164 1-800-663-5413	(403) 228-5120 1-800-661-1169	(403) 423-1904 1-800-661-2745	(306) 665-8815 1-800-665-8815	(613) 736-1946 1-800-267-7040

©1992 Green Dental Laboratories. Saddle-Lock® and Retentoscope® are registered trademarks of the Saddle-Lock Co., Inc.

JOURNAL
Canadian Dental Association
L'Association Dentaire Canadienne

November 1992 Vol. 58 No. 11

Specialty Features

Computers In Clinical Dentistry 898 P. Ralph Crawford, BA, DMD

Interview

Dentists At Risk: An Interview With Dr. Bob Brandon 900 P. Ralph Crawford, BA, DMD

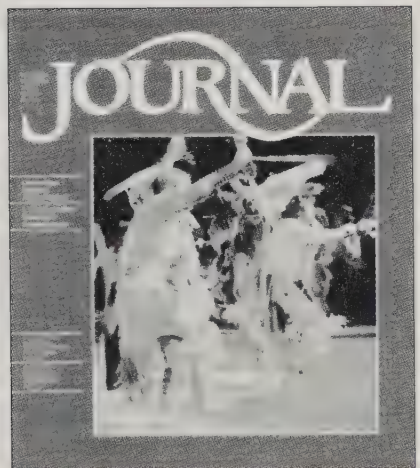
Scientific

Stress factors and coping strategies in the dental profession 905 Rita Zakher, DMD, Maurice Bourassa, PhD

Dental care for the psychiatric patient: chronic schizohprenia 912 David B. Clark, DDS, M.Sc., MRCD(C)

Comparison of dental caries and oral hygiene indices for 13- to 14-year-old Quebec children between 1977 and 1989-1990 921 Martin Payette, DDS, Jean-Marc Brodeur, DDS, PhD

Considérations spéciales relatives aux pièces de prothèses amovibles de classe 1 et 2 à la mandibule 934 Lynda Nicholson, DMD, M.Sc.



Cover: Red Thunder (Chadi K'azil), just one of the great performers taking part in the opening ceremonies of the CDA's 1992 annual dental meeting in Calgary, Alberta. (Photo by Greg Thomas)

Departments

866 Announcements
867 Editorial
869 President's Column
871 Convention Roundup
877 News Update
884 Book Reviews
886 Library
887 CDA Convention
895 Practice Management & Success
945 CDSPI Reports
951 CDA Access Ads
954 Advertisers' Index

Announcements

NATIONAL HIGHLIGHTS

March 4-6, 1993
B.C. Dental Meeting
Vancouver, B.C.
Marilynne Webster
(604) 736-3645

April 28 - May 1, 1993
1993 Canadian Dental Association Annual Meeting (Hosted by ODA)
Toronto, Ontario
See blue pages for more details
or call Janice Edgar
1-800-267-6354
(613) 523-1770

December/Décembre 1992

December 3-8: Iranian Dental Association 30th Annual Dental Convention & 10th International Dental Exhibition. For more details, contact: Dr. Ali Yazdani, president, Iranian Dental Association, 94 West Pirouzi St., Nasr Place, P.O. Box 14155 - 3695, Tehran, Iran.

January/Janvier 1993

January 21-24: Natick..."Kaleidoscope of Knowledge," 18th Yankee Dental Congress, will be held in Boston, Massachusetts. For information, contact: YDC-18, Massachusetts Dental Society, 83 Speen Street, Natick, MA 01760-4125. Tel: (508) 651-7511.

February/Février 1993

February 10-14: Jamaica Dental Association Annual Convention being held at the Ramada Mallards Hotel, Ocho Rios, Jamaica. For more information, contact: Dr. Louis U. Knight, Chairman, Convention Committee, P.O. Box 19, Kingston 5, Jamaica.

February 13-20: Barbados Dental Association Convention. For more information and preregistration (limited), contact: Lynne Brandon, CDA, CDR at 85 Lonsdale Dr., London, Ontairo N6G 1T4, or call: (519) 657-4306.

February 16-20: Australian and New Zealand Association of Oral and Maxillofacial Surgeons XVth Biennial Conference, will be held at the Sheraton Southbank, Melbourne, Australia. For more information, contact: Mr. D.W. Wiesenfeld, 766 Elizabeth St., Melbourne, Australia, 3000.

February 20-27: Virgin Islands Dental Association Convention. For more information and preregistration (limited), contact: Lynne Brandon, CDA, CDR at 85 Lonsdale Dr., London, Ontario N6G 1T4, or call: (519) 657-4306.

February 22-26: "Medicine Update Program for Dentists and Doctors." McMaster University continuing education course is being held at Chateau Lake Louise, Lake Louise, Alberta. For more information, contact: Ms. S. Studd, Continuing Education, Faculty of Health Sciences, McMaster University, Chedoke Campus TB74, 1200 Main St. West Hamilton, Ontario L8N 3Z5. Tel: (416) 521-7966.

March/Mars 1993

March 11-13: 25th Annual Mid Winter Meeting and Bonspiel (Western Canada Dental Society) in Vancouver, B.C. Interested individual curlers or teams can obtain more information by contacting: Dr. Elgin Duke, Chairman, 10340-134A Street, Suite 206, Surrey, B.C. V3T 4B8. Tel: (604) 585-3177.

March 20-24: 27th Australian Dental Congress in Melbourne, Australia. For more details, contact: National Dental Congress Secretariat, P.O. Box 29, Parkville, Victoria, Australia 3052. Tel: (03) 387-9955.

April/Avril 1993

April 4-7: Conference: Focus on Children - Protecting our Future, jointly sponsored by the Canadian Organization for Victim Assistance and Child Find Alberta, being held at the Calgary Convention Centre. For details, call: (403) 239-2920.

April 15-18: 5th International Congress on Preprosthetic Surgery in Vienna, Austria. For information, contact: G. Watzek, Congress President, Interconvention Austria Center Vienna, A-1450, Vienna, Austria.

April 19-23: 2ème congrès d'Odonto-stomatologie de Côte d'Ivoire à Abidjan. Pour informations, contacté: Comité d'organisation, Dr. Adiko Eyholand F., 22 BP 512 Abidjan 22.

April 21-22: 10th International Oral Implant Symposium will be held at the Pan Pacific Hotel in Kuala Lumpur, Malaysia. For more details, contact: AOIA Secretariat, 268 Orchard Road #05-07, Singapore 0923, Republic of Singapore. Tel: (65) 734-3162.

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at September 30, 1992	August 31,1992
Bond & Mortgage Fund	100.26253	101.04962
Common Stock Fund	17.90860	17.78793
Money Market Fund	61.80293	61.66609
Balanced Fund	36.68094	36.67551

G.I.C. Fund Term	*Interest rates as at September 30, 1992	August 31, 1992
1yr	4.85%	4.85%
2yr	5.35%	5.35%
3yr	6.10%	6.10%
4yr	6.60%	6.60%
5yr	7.10%	7.10%

*(*rates subject to change without notice.)*

Total Assets (market value) of the Plan as of

September 30, 1992	August 31, 1992
$168,720,706.80	$168,514,307.80

For further information:

Write:

CDSPI
Retirement Services Dept.
Suite 710
100 Consilium Place
Scarborough, Ontario
M1H 3G8

or phone, toll free:

416-296-9401
1-800-561-9401
Metro Toronto
Service in English
Extensions:
252, 253, 254
1-800-665-9401
Service in French
1-416-296-8920
Fax.

Editorial

SAY IT AIN'T SO

If we had used this month's title, "Say It Ain't So," on a school assignment, we may well have failed English 101. But that didn't stop *Maclean's* magazine from running the same words, in 60-point type, over its October 5, 1992, cover story.

Maclean's head, not surprisingly, ran with an article on Wayne Gretzky's herniated disc, an injury that has jeopardized The Great One's brilliant hockey career. Gretzky, after all, like Joe DiMaggio, set a new standard for his chosen sport.

Dr. P. Ralph Crawford

Risking the danger of inciting the wrath of every hockey fan in the country, it seems to me that a number of recent events in dentistry warrant the title "Say It Ain't So" even more than Gretzky's back injury, as unfortunate as it was.

In fact, *Maclean's* "Say It Ain't So" headline took me back to a meeting I attended in Calgary last August, during the CDA convention.

The day-long session brought the communication coordinators from the various provincial dental associations together to discuss their respective communications strategies and programs. CDA hosts the coordinator's meeting on an annual basis. It's an important event, as it provides a unique opportunity for each provincial association to hear what their counterparts are doing in the communications area.

Basically, the meeting is about exchanging ideas. Using an around-the-table approach, each dental jurisdiction relates its recent communications experience, from how a series of TV public service announcements worked here, why a shopping-mall exhibit was so successful there, to when a new multi-media campaign should be launched.

It's rare that any aspect of dental communications is left unvisited. Everything from pamphlets, booklets, radio spots, TV announcements, newspaper ads, and contests have been tried at least once, and new strategies are constantly being developed.

Still, this year's coordinators' meeting produced a few surprises. When the discussion turned to how each dental jurisdiction handled specific issues – mercury, fluoridation and infection control, for example – one coordinator stated that: "Dentists don't want to take the time to talk to their patients. They're looking for TV and the media to answer these issue-type questions."

And this was not a singular belief. At least three coordinators nodded in approval of their confrere's statement. They didn't agree with the idea of dentists passing the communications buck, only that a "let the media handle it" attitude existed in their home province.

Say it ain't so! Surely we haven't reached the point where dentists are no longer willing to take the time to talk to their patients. Or have we?

The results of a survey, undertaken several years ago, seem to support what the communications coordinators were saying. When the question, "Where do you expect to get dental information?," was posed to patients, the overwhelming response was, "From my dentist."

However, when the question was turned around, and dentists were asked, "How should patients receive dental information?," many replied, "From the media."

If this attitude is prevalent in the profession, then dentistry is in a very sorry state indeed. When dentists, as health care professionals, cannot take the time to talk to their patients, then dentistry deserves every bit of bad press that it receives.

Nor should we be comforted by the fact that some polls suggest that we, as dentists, are members of one of the most trusted professions. Very few patients go to the dentist because they really enjoy the experience, and there is still a great lack of knowledge, and many misconceptions, about dental procedures.

We certainly know what happens when patients obtain dental information from the media alone. Remember the "hype" that the press gave to mercury, infection control and fluoridation, and the public reaction that ensued? Surely, it makes consummate sense for us to ensure that patients receive accurate, balanced information on the safety and efficacy of modern dental procedures from the person they trust most – their dentist.

But we're not communicating as well as we should. Recently, I reviewed 23 decisions issued by the Health Disciplines Board of Ontario. Covering a two-month period, these rulings dealt with complaints against physicians, dentists, nurses and veterinarians. There was a striking note of similarity in many of them: insufficient communication; the patient did not avail himself of the opportunity to discuss the situation; there were considerable communication difficulties; unfortunate breakdown of communications; and, the patient was confused about what happened.

Clearly, there was a lack of dialogue between the professionals involved and their patients. In every case, but particularly for the dental profession, the solution is quite simple. Patients want to hear about dentistry from dentists, and no one knows more about dentistry than dentists.

When the provincial communications coordinators meet next year, let's hope we no longer have to cry out, "Say it ain't so!"

P. Ralph Crawford, BA, DMD
Editor of the Journal of the Canadian Dental Association

ROVAMYCINE® P

Spiramycin/Antibiotic

Indications: For the treatment of infections of the respiratory tract, buccal cavity, skin and soft tissues due to susceptible organisms.

Pharmacology: It is active against the following gram-positive organisms: S. aureus (including penicillin resistant strains), beta-hemolytic streptococci, S. viridans, S. faecalis and S. pneumoniae, C. diphtheriae, clostridia.

RHÔNE-POULENC RORER

RHÔNE-POULENC RORER CANADA INC.*
MONTRÉAL
* registered user

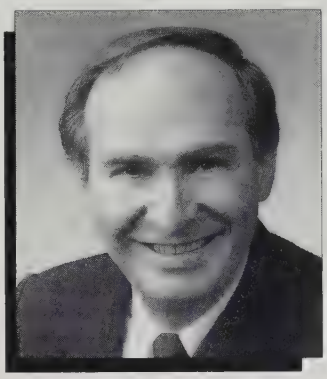
Marketed by
HOECHST-ROUSSEL CANADA INC.

PAAB

Product information on page 896

President's Column

THE FUTURE OF WORLD DENTISTRY



Dr. Bernard Dolansky

It is strange, when you think about it, how people are stereotyped based on their nationality, their religion or the color of their skin. Canadians, for example, are seen by many people as being dull and unimaginative, even though two of the world's most popular creations, basketball and Superman, had their origins in Canada.

And I'm sure that similar examples could be found to refute many of the other stereotypes that exist today. Not every Frenchman is a connoisseur of fine wine; the Swiss are not all good organizers; some Germans don't know one end of the car from the other, and a few Briton's have actually mastered the art of preparing fine cuisine.

Much the same thing could be said about the stereotypes that are applied to dentists. We are all individuals, and we all have our good points and our bad points, no matter where we hang our shingle.

Recently, I had an opportunity to see this first hand. One of the traditional (and few) "perks" enjoyed by CDA presidents is their pilgrimage, as the head of the Canadian delegation, to the annual world congress of the Fédération Dentaire Internationale. Dentists from many different countries and backgrounds attend the meeting, bringing with them a wide variety of attitudes and concerns.

Based on my experiences at the 1992 FDI congress in Berlin, I can truly say that there is no one stereotype that fits the entire dental profession. Unfortunately, I can also say that I still have some mixed feelings about FDI, and its relevance for Canadian dentists.

During the years of my involvement with organized dentistry, I saw FDI as an organization that was very peripheral to the everyday concerns of most Canadian dentists. In fact, when I had time to think about FDI, I usually wondered why we bothered to participate in the organization at all.

Perhaps it isn't surprising that I felt somewhat resentful last September, when I boarded the plane to go to FDI. As CDA's newly-installed president, tremendous demands were been made on my time, and spending a week in Germany wasn't going to help matters.

At present, however, CDA, on behalf of Canadian dentistry, has an enormous responsibility vis à vis FDI. In 1985, we bid for, and won, the right to host the 1994 FDI world congress. To put it in its simplest form, CDA has invited the dentists of the world to Vancouver, British Columbia, from October 2-8, 1994.

We aren't taking this obligation lightly. In fact, finalizing the arrangements for the FDI meeting in Vancouver, as well as promoting the event, took up much of our time in Berlin. But we still have to come to grips with the larger question: What is the function of international dentistry and, especially, what should Canada's role be.

As North American dentists, we are truly privileged relative to our colleagues in the rest of the world. We enjoy the best of everything: educational opportunities; continuing professional development; access to the most advanced equipment and supplies; superbly organized, effective dental associations to protect our interests; and the benefits offered by a free enterprise environment. And these are just a few of the things that are not universally available to our non-North American colleagues.

But as residents of a privileged region, Canadian and American dentists are "donors," providing resources and knowledge to other parts of the world. To some extent, my mixed feelings about FDI relate to my ongoing concerns over the organization's ability to act as an effective conduit for our assistance and expertise. In Berlin, while some progress was made toward improving the overall efficiency and effectiveness of FDI, thinly-veiled vested self interests blocked other reforms.

I'm not saying that we should give up on FDI. The new president of the organization, Dr. Clive Ross of New Zealand, and his team are trying to provide capable, sincere leadership. Dr. Ross is not only well aware of the problems facing the organization, he is also spearheading the movement for reforms. His team seeks changes for the good.

Our job, for the next year and a half, will be to organize the best world congress that FDI has ever seen. By playing host to FDI in 1994, we will gain a renewed insight into the workings and effectiveness of the organization, and we will have an excellent opportunity to judge for ourselves the success of Dr. Ross's reform efforts and administration.

My personal opinion is that after we put on the best FDI congress ever in Vancouver, Canadian dentistry will have gained the necessary knowledge to assess how we can best discharge our international obligations.

Bernard Dolansky, BA, DDS, MS
President of the Canadian Dental Association

Get 30% more car and 100% fewer headaches with the CDA Leasing Program!

Getting a new car today can be a real hassle. Travelling from car lot to car lot, zealous salespeople — it can all add up to an unpleasant and time-consuming experience.

Unless you do what more and more of your colleagues are doing. Just call CDA Leasing and let them do the shopping for you. They can get any vehicle you want, North American or import. And, their fleet purchasing power, combined with the advantages of leasing, means you can drive the vehicle you want for about 30% less per month than if you financed through your bank. Keep the difference in your pocket, direct it towards other worthwhile investments, or get the next model up, with all the goodies, for the same budgeted payment!

CDA Leasing will handle the whole transaction, from helping to identify the make, model, and options that best suits you, to localized purchase and delivery of your new car. They can even help you dispose of your existing vehicle. CDA Leasing documents are simple and straightforward, with terms that can be tailored to exactly meet your needs. And, you can drive all you want. No kilometer restrictions! A guaranteed purchase option on every lease!

Make obtaining your next new vehicle headache-free and save money too — call CDA Leasing at 1-800-461-2923 today! They'll be happy to explain why dental professionals across Canada are turning to CDA Leasing.

CDA Leasing / Location ADC
7100 Woodbine Ave., Suite 400, Markham, Ont. L3R 5J2
Telephone: (416) 477-8377, Toll-Free 1-800-461-2923

See us at the Winter Clinic, booths 430 & 432

CONVENTION '92 ROUND-UP

The CDA information centre – a continuous source of membership services.

CDA's 1992 convention, held at Calgary's Stampede Park August 29 to September 1, was one "GREAT ROUND-UP." More than 5,000 delegates, including 1,785 dentists, became cowboys and cowgirls during four great days of exhibits, scientific lectures, and fun.

Every CDA convention offers participants an opportunity for learning new theories and techniques, viewing the latest in equipment at the numerous exhibits, reunions with friends and classmates, and, generally, for having a good time. The Calgary convention committee achieved all this and more. No convention is a success without the hard work and dedication of its host-city volunteers, CDA staff and exhibitors. To all of you,

"THANKS PARDNER."

A time of learning — Jennifer de St. Georges lectures to a packed house.

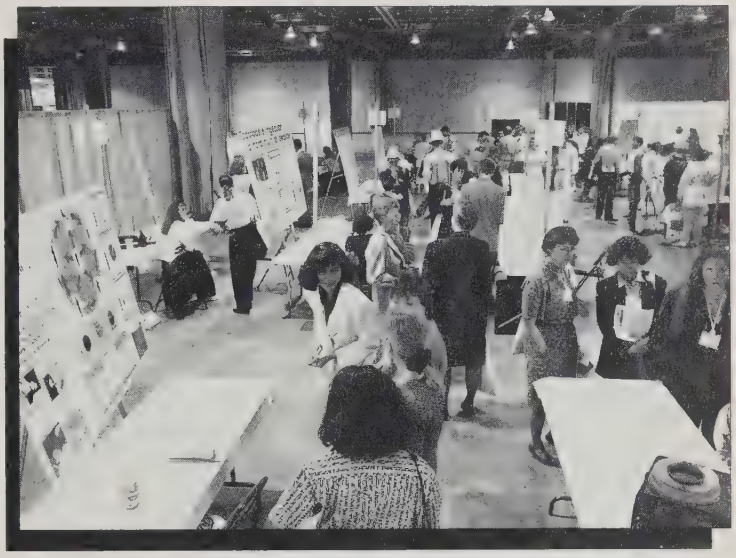
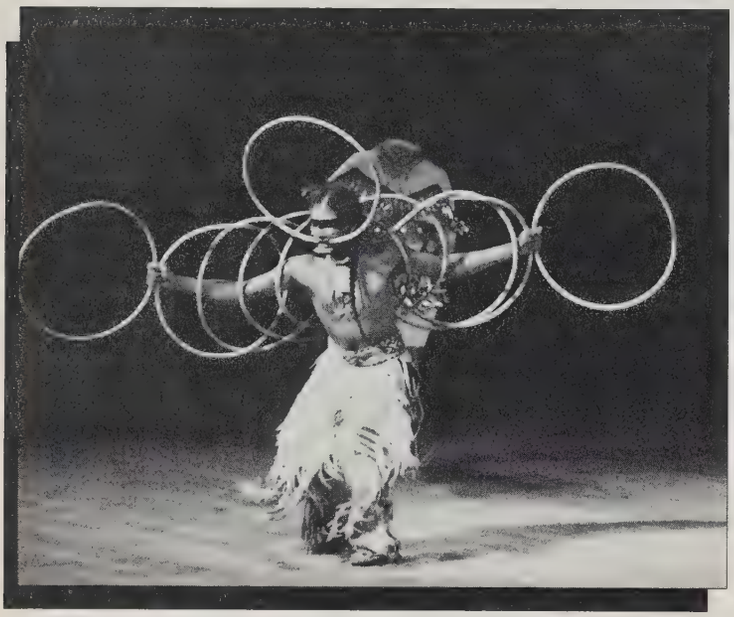


Table Clinics – the one-on-one opportunity to keep current on new methods, theories and programs.

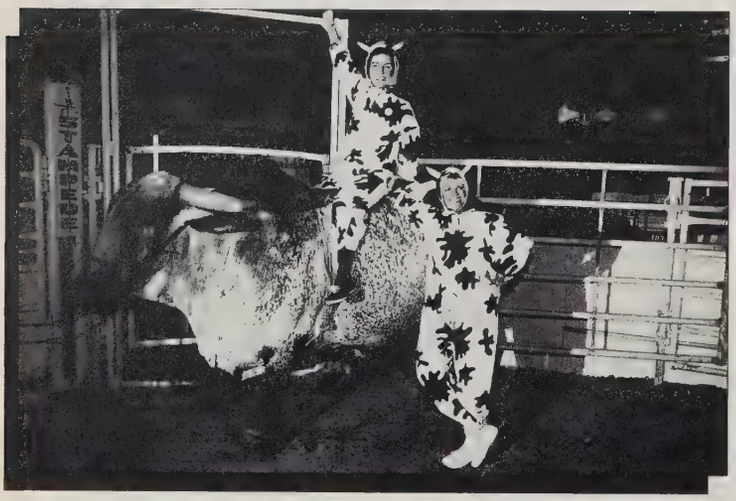
The exhibit floor — what's new in equipment and materials. (Photocopying services were donated by Calgary Copier Ltd., a local company.)

CONVENTION '92 ROUND-UP

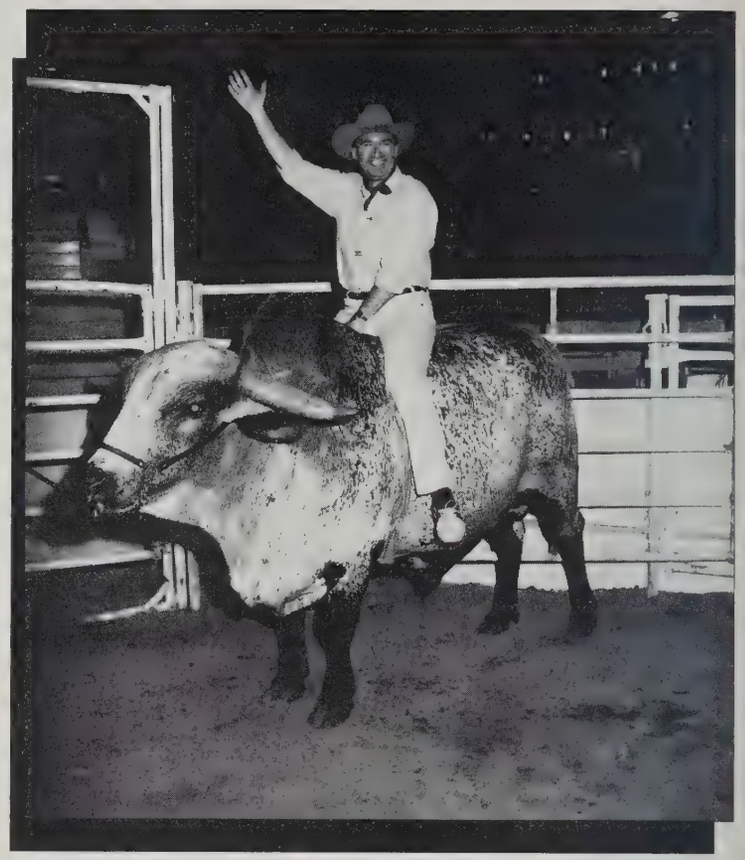
Only in Calgary! Flapjacks for breakfast every morning, thanks to Aurum Ceramic.



The opening ceremonies – a kaleidoscope of color, sound, patriotism and the hoop dance from Red Thunder.



A pair of real cowgirls



Rodeo night: Looks like a lot of bull to us!

Dr. Janice Gerdts, Red Deer, Alberta, won the pre-registration draw for an Air Canada trip for two, anywhere that Air Canada flies. Dr. Les Allen, CDA's president (left), presented the tickets to Dr. Gerdts, while Dr. Michel Jahjah, CDA's convention chairman, looked on.

Buying or selling your practice?
Then consider

our

complete and comprehensive package of listings

services.

Medi-Dent Professional Services* recognizes the decision to buy or sell a practice will more than likely be the most important professional transaction you'll ever have to make.

For that reason, we utilize the services of licensed sales professionals, including an expert in this field, Ron MacKenzie, a practising chartered accountant and regular columnist in *Oral Health*, who will provide personal assistance and guide you through every step of the transaction.

By listing with Medi-Dent Professional Services, you are also assured of a confidential, complete and comprehensive package of professional services. That's because the business of buying, selling and providing evaluating services for scores of potential purchasers is our business. We're a recognized leader in Canada and have been for the past 30 years.

Introducing Video Listings

Our package of services includes:

- *monthly mailings of listings*
- *national/provincial advertising*
- *exposure within Medi-Dent national network*
- *ability to arrange up to 100% financing*
- *retirement/transition assistance*
- *dental school meetings and mailings*
- *VHS library of video listings* NEW

Call us. Find out why more than 240 qualified potential purchasers, looking for all kinds of different practices in a wide variety of locations and sizes, have registered their requirements with us.

CALL NOW
FOR YOUR FREE COPY OF
"A GUIDE TO SELLING YOUR PRACTICE" AND "A GUIDE TO PRACTICE EVALUATIONS".

In Ontario, operating as New Era Realty (Ontario).

Al Heaps
Vancouver
TEL (604) 669-9857
1-800-563-4321
FAX (604) 685-9908

Craig Nicks
Calgary
TEL (403) 237-5360
1-800-563-4321
FAX (403) 269-9103

Lee Maddison
Burlington*
TEL (416) 335-7464
1-800-563-4321
FAX (416)335-7590

John Crisp
Toronto*
TEL (416) 620-0922
1-800-668-4221
FAX (416) 620-6719

John Lynch
Ottawa*
TEL (613) 236-0231
1-800-563-4321
FAX (613) 238-8099

Medi-Dent Professional Services

CONVENTION '92 ROUND-UP

The CDA annual Fun Run – everyone is a winner.

CDA's 1992 Calgary trail bosses: (l.to r.) Mr. Jardine Neilson, Drs. Barry Dolman, Les Allen, Bryun Sigfstead, Bernie Dolansky, Jim Brookfield, Ray Wenn, Ron Smith, Bernie White, Toby Gushue.

(The special exhibit attendance draw for a weekend for two at any Canadian Pacific hotel or resort in Canada was dental hygienist Ms. Pennie Casey of Canmore, Alberta.)

Dr. Michel Jahjah (right) and Dr. Les Allen (left) watch as Mr. Hyo Maier, the president of Aurum Ceramic/Classic Dental Laboratories, reads out the name of Dr. James McNab of Spruce Grove, Alberta, who won the draw for an "all terrain" Jeep YJ. The contest was sponsored by Aurum Ceramic/Classic Dental Laboratories.

A-DEC BRINGS INFECTION CONTROL TO A WHOLE NEW DECADE®.

The Decade® IC System by A-dec. The delivery system engineered to make infection control fast, easy and productive for your practice.

Designed for maximum cleanability, the Decade IC control combines a smooth design, cleanable holders and controls placed out of the aerosol zone. A foot-operated wet/dry control gives you hands-free operation. And thanks to a removable, autoclavable key, dirt-catching knobs are eliminated.

In fact, every component of the Decade IC system is easy to clean. The autoclavable syringe is specially shaped for fast, thorough cleanup. A quick-release head lets you change from one syringe to another – fast. The Easy-Clean HVE features a one-piece valve that removes in seconds without tools, making it easy to clean, inside and out. Team this with smooth tubing and our handpiece flush system and you have a control system unsurpassed for infection control.

Emphasis on infection control continues with the Decade® Cuspidor. From the smooth housing and removable glass bowl, to the streamlined button design and smooth surfaces, the entire cuspidor wipes down easily. There's even a timed bowl rinse, plus removable rinse and cup fill spouts. All at a price that makes infection control an affordable value.

To make the '90s the infection control decade for your practice, contact your authorized A-dec dealer today.

a-dec®

A-dec, Inc., P.O. Box 111, 2601 Crestview Dr., Newberg, OR 97132 USA, (503) 538-9471, Fax: (503) 538-5911. ©A-dec, Inc., 1992. All rights reserved.

Statistics show they could both end up driving it.

People who buy a Mercedes-Benz expect to keep it longer than other cars. And for good reason.

Galvanized steel is used for body parts that are prone to corrosion. Ten kilograms of weather-resistant sealant and as many as eight coatings and finishes protect the car's underbody and exterior.

Little wonder that 97% of all Mercedes-Benz cars registered over the last 15 years are still in operation* (that's more than any luxury car make sold throughout that time period).

So buy your budding young driver a new Mercedes, and drive it yourself until he's ready.

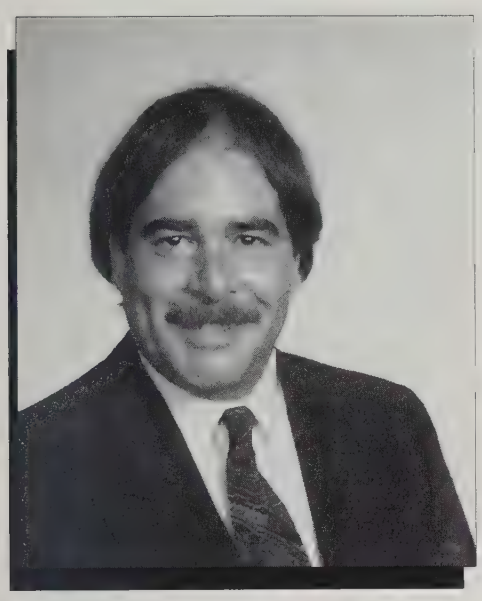
For additional information on Mercedes-Benz call 1-800-387-4632.

Sacrifice nothing.

*Based on registration data for cars sold continuously for years 1977-1991. ©1992 Mercedes-Benz Canada Inc., Toronto, Ont., Member of the Daimler-Benz Group.

News Update

Orthodontists Elect New President



Dr. Michel Farmer

Dr. Michel Farmer has been elected president of the Canadian Association of Orthodontists (CAO).

A graduate of the University of Montreal's dental and orthodontic programs, Dr. Farmer was elected as CAO's president last August, during the association's 44th annual scientific meeting.

Dr. Farmer maintains a private practice in Montreal. He was elected president of the Quebec Association of Orthodontists in 1989, and has been Quebec's representative to CAO since 1987.

Also elected to the association's 1992-93 executive were: Dr. Michael Wainwright, Vancouver, president-elect; Dr. Lee Erickson, Dartmouth, Nova Scotia, first vice-president; Dr. John Kalbfleisch, Toronto, second vice-president; and Dr. Arlene Dagys, Toronto, secretary-treasurer. ■

Pedodontists Elect New Executive

A Montreal dentist has been elected as president of the Canadian Academy of Pediatric Dentistry (CAPD).

Dr. Victor Legault was elected president of CAPD last August, during the academy's annual meeting. He will be joined on CAPD's 1992-93 executive by: Dr. Bob Patton, Vancouver, president-elect; Dr. Peter Pronych, Halifax, past-president; and Dr. Murray Diner, Montreal, secretary-treasurer.

CAPD has its roots in the former Canadian Society of Dentistry for Children, which held its inaugural national executive council meeting in 1963. That same year, the society took its first steps toward obtaining recognition of pediatric dentistry, then called pedodontics, as a specialty.

Pedodontics was granted specialty status by CDA in 1965. One year later, in June 1966, the first officers of the Canadian Academy of Pedodontics (CAP) were elected. Dr. W.H. Feasby became the academy's first president, while Drs. R.L. Scott, A.W.S. Wood and N. Levine rounded out the executive.

In 1984, the name of the specialty was changed from Pedodontics to pediatric dentistry, and the name of the academy to the Canadian Academy of Pediatric Dentistry.

The academy appointed its first executive director, Dr. Ian C. Bennett, in 1992. In addition, it established a central office to improve communication between its members and other related organizations. ■

Annual Student Essay Award Contests Announced

The American Society for Geriatric Dentistry has announced its 12th annual essay awards contests.

Open to any dental or dental hygiene students currently enroled in an accredited U.S. or Canadian program, the contests are designed to encourage interest in geriatric dentistry among dental science students.

Two separate awards are presented annually – the Saul Kamen Scientific Report Award and the Arthur Elfenbaum Essay Award. Each carries a $1,000 first prize, $350 second prize and $100 third prize.

The Kamen Award is primarily targeted at graduate students and residents in advanced oral health-related programs, while the Elfenbaum Award is presented for the best referenced, scholarly essay on a health care concept, health care policy, or clinical issue that concerns geriatric oral health.

Entries for the contest close March 1, 1993. Further information may be obtained by writing: Dr. Kenneth Shay, Chairman, Essay Award Committee, VA Medical Center, Milwaukee, Wis. 53295. ■

Canadian Dental Research Awards Announced

Two Canadian students have won prestigious awards for the papers they

Mr. M.R. Gravel of the University of Westen Ontario and president of the CADR, Dr. Derek Jones, of Dalhousie University.

Mr. H. Veisman of the University of Toronto and Dr. Derek Jones.

presented at the International Association of Dental Research (IADR) meeting in Glascow, Scotland, last July.

The Canadian Association of Dental Research (CADR) presented the awards, which included travel grants to attend the IADR meeting as well as cash prizes, to Mr. M.R. Gravel of the University of Western Ontario and Mr. H. Veisman of the University of Toronto.

Mr. Gravel received the CADR/ACRD Crest Award, sponsored by Procter and Gamble Inc., for his paper, "Platelet Activating Factor Induces Pseudopod Formation in Calcitonin Treated Rabbit Osteoclasts." Mr. Gravel's supervisor was Dr. Jeffrey Dixon.

Mr. Veisman's paper, "Kinetics of *S. sanguis* and *A. naeslundii* Coadhesion on the surface of Hexadecane Droplets," won the CADR/ACRD Close-Up Award, sponsored by Chesebrough-Pond's (Canada) Inc. Mr. Veisman's paper was supervised by Dr. Richard Ellen. ■

Guidelines For Referring Patients to Dental Specialists Approved

CDA has approved new guidelines, as well as a standardized form, for referring patients to dental specialists.

The new guidelines were developed by the CDA dental specialities committee, chaired by Dr. Ian Vogan of Halifax, Nova Scotia. Throughout the development process, the guidelines were circulated for comment to the presidents and chief executive officers of CDA's corporate members, the licensing authorities, specialty sections, affiliated dental organizations, deans of dental schools and chairmen of both the ethics committee and the committee on community and institutional dentistry.

Guidelines for Referring Patients To Dental Specialists

Patient Referral – A Professional Responsibility

Introduction

"The CDA is the authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada – dedicated to meeting member needs, and the promotion and provision of optimal oral health for Canadians."

The CDA Code of Ethics, under "Responsibilities to Patients," Article 3, states: "Dentists shall provide treatment only when qualified by training or experience; otherwise a consultation and/or referral to an appropriate practitioner is warranted."

In those cases warranting it, timely and appropriate referral is an ethical imperative which fulfils a professional duty to a patient. Failure to inform a patient of the need for consultation and/or referral places the dentist in breech of the Code of Ethics.

This document is provided as guidelines only, to assist dentists in the referral process. It suggests times and areas where communication may be enhanced. It should be utilized in compliance with the knowledge of any associated regulations of the provincial dental licensing authorities.

Preamble

Clear and effective communication between all parties is essential in the referral process. The following guidelines are intended to clarify the various elements and responsibilities needed to provide the referred patient with the required level of professional care.

Communication between the General Dentist and the Patient

1. The patient (parent or guardian if appropriate) should be informed of the nature of the problem necessitating referral.

2. Referral to a specific specialist is recommended. This decision should take into account any patient preference.

3. The patient should be informed that all relevant information will be sent to the specialist in advance of the consultation appointment.

4. The patient should be given information which will assist in introduction to the specialist, such as preconsultation instructions (where indicated), educational material and directions to the specialist's office.

Communication between the Referring Dentist and the Specialist

1. The referring dentist should convey, in advance, all information which will assist the specialist in providing a complete consultation service to the patient. This would include:

i) Name, age, address, and telephone number of patient.

ii) Reason for referral.

iii) Any medical history which may require antibiotic coverage in advance of the consultation or other precautions to allow oral examination.

iv) Pertinent records such as radiographs, models, and any contributing previous medical and/or dental history.

v) Projected treatment needs beyond the referral.

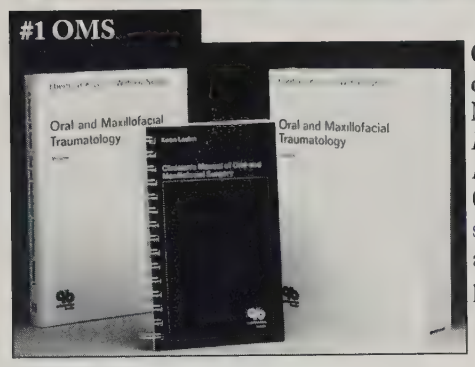
vi) Assessment of the patient's level of awareness, interest or concern regarding oral health and projected treatment.

Communication between the Specialist and the Patient

1. Prior to consultation, the specialist's office should provide the patient with

Choose Any 3-Book Set For Only $220.00
And Save Up to $198.00!
(But don't delay, this offer expires December 31, 1992)

#1 OMS

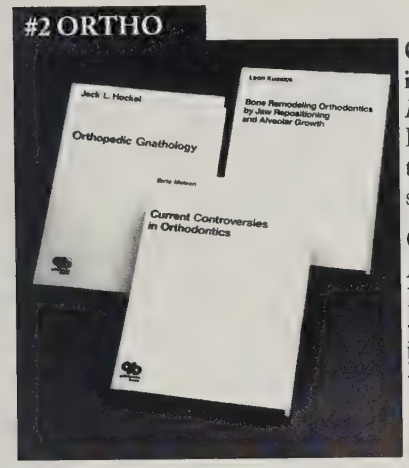


Clinician's Manual of Oral and Maxillofacial Surgery
Edited by Kwon/Laskin
Convenient clinical source for both basic and complicated procedures.

Oral and Maxillofacial Traumatology: Volumes 1 and 2
Edited by Krüger/Schilli
Two-volume set provides a comprehensive review of maxillofacial traumatology.

(ACTUAL PRICES TOTAL $418.00, NOW $220.00)

#2 ORTHO



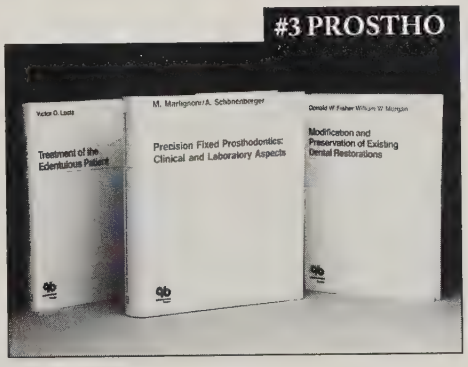
Current Controversies in Orthodontics
Edited by Melsen
Experts in their fields evaluate the present state of the art of several topics in orthodontics.

Orthopedic Gnathology
Edited by Hockel
Fundamental theories and philosophies are accompanied by practical information to better understand this mode of patient care.

Bone Remodeling Orthodontics by Jaw Repositioning and Alveolar Growth
Kussick
Documenting more than 150 cases, this book is the only authoritative guide to bone remodeling.

(ACTUAL PRICES TOTAL $368.00, NOW $220.00)

#3 PROSTHO



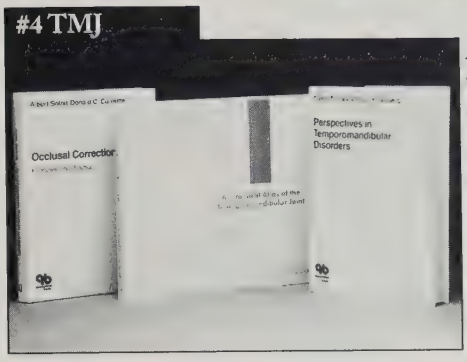
Precision Fixed Prosthodontics: Clinical and Laboratory Aspects
Martignoni/ Schönenberger
Provides a method of standardizing the entire clinical process and gives step-by-step laboratory procedures.

Modification and Preservation of Existing Dental Restorations
Fisher/Morgan
Diagnoses common restorative failures and distinguishes those that are amenable to modification from those that require remakes.

Treatment of the Edentulous Patient
Lucia
Step-by-step procedure and techniques for constructing natural-looking, comfortable dentures. Also covers immediate dentures and overdentures.

(ACTUAL PRICES TOTAL $402.00, NOW $220.00)

#4 TMJ



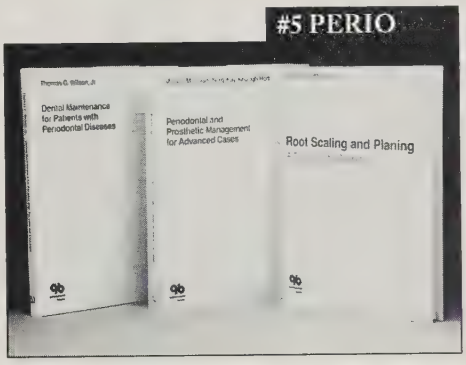
Anatomical Atlas of the Temporomandibular Joint
Ide/Nakazawa
Pictorial atlas that provides three-dimensional images of the TMJ and muscular and nervous systems associated with mastication.

Occlusal Correction: Principles and Practice
Solnit/Curnutte
In an atlas-style format, case studies teach the reader how to adjust every tooth in typical and atypical situations.

Perspectives in Temporomandibular Disorders
Clark/Solberg
Compiles research on anatomy, radiography, arthrography, epidemiology, differential diagnosis, condyle position, and surgical treatment.

(ACTUAL PRICES TOTAL $330.00, NOW $220.00)

#5 PERIO



Periodontal and Prosthetic Management for Advanced Cases
Rosenberg/Kay/ Keough/Holt
This team approach and sequence of therapy remedies today's demand for integrated periodontal-prosthetic therapy.

Dental Maintenance for Patients With Periodontal Disease
Wilson
Emphasizes the importance of maintenance therapy, provides specific techniques, and shows how to improve patient compliance.

Root Scaling and Planing: A Fundamental Therapy
Wasserman
Interrelates theory with methodology, explains instrument design, and guides you, step by step, through the process.

(ACTUAL PRICES TOTAL $334, NOW $220.00)

8/92

Quintessence Books

Please circle the set(s) that you want: #1 #2 #3 #4 #5
Total number of set(s) ordered _____
❑ Bill me, including shipping & handling.
❑ Bill my credit card plus shipping & handling.
For Illinois and Canadian residents, sales tax will be added if applicable.
Prices subject to change without notice. All sales are final.
Payment must be made in US funds.

Visa/MC/AmEx no. _____ Exp. _____

Signature _____

Name _____
(Please print.)

Address _____

City/State/Zip _____
PO boxes not acceptable

For Immediate Service Call Toll-Free 800-621-0387
(Within USA & Canada, 9am-5pm Central Time) Or Fax 708-682-3288

the details of the appointment time, date and the location of the office. Information regarding the approximate duration of the consultation visit, consultation fee, and any pre-consultation instructions may be conveyed either routinely or in response to the patient's request.

2. After consultation, the specialist should provide the patient with information adequate to make an informed decision, including:

i) A diagnosis, recommended treatment, and a prognosis. When discussing treatment, the advantages and disadvantages, including costs of both the recommended treatment and alternative approaches, should be clarified.

ii) The ramifications of the proposed treatment. This should cover the need for future treatment, and follow-up maintenance.

iii) The expectation that the patient will return to the referring dentist for ongoing dental care. If follow-up specialist care is anticipated, it should be coordinated with the general dentist in such a way as to avoid duplication of effort.

Communication between the Specialist and the Referring Dentist

i) The specialist's office should confirm receipt of a referral made through correspondence and relay the timing of the scheduled consultation appointment to the referring dentist.

ii) In the event that the patient fails to keep the consultation appointment, the referring dentist should be informed.

iii) When a consultation is provided on the basis of a self-referral by the patient, the patient's general dentist should, with the patient's permission, be sent a report in order to keep the patient's records current.

iv) After consultation, a report from the specialist indicating a diagnosis and proposed treatment should be sent to the referring dentist. Any anticipated dental care, prior, during or after the specialist's treatment should be discussed.

v) In those situations where the specialist determines the need for dental care outside his/her specialty, the specialist should confer with the referring dentist to determine whether the patient's need will be met by the general dentist or by another specialist and, if the latter, which specialist.

vi) Progress reports should be communicated when treatment has been delayed or interrupted or significantly modified.

vii) A final report should be sent at the end of active treatment when the patient is returned to the general dentist's care. This report should include suggestions for maintenance, follow-up or review and recommendations for further treatment. In addition any records supplied by the referring dentist should be returned at this time.

viii) On occasion, at the completion of active treatment the patient may not wish to return to the referring dentist, and request referral to a new general dentist. In this situation, the specialist should inform the patient that professional ethics prevent further referral until the patient has discontinued the existing professional relationship with the original dentist.

ix) A request for a second opinion should be treated as a regular consultation. A report should be submitted as in (iv) above to the person requesting the second opinion. A copy of the report should be made available to the "first" specialist, subject to permission of the patient.

Method of Information Transfer

In the majority of situations, it is preferable that communication between referring dentist and specialist, in both directions, be in writing, since it becomes part of the patient's record. For the same reason it is advisable to record communication with the patient regarding diagnosis, treatment plans, fees and payment schedules in written form for both the patient's records and those of the general dentist or specialist.

There are occasions, however, when telephone communication is indicated. Examples include:

i) establishing the time and date of the specialist's consultation. It is more efficient to do this directly from the referring dentist's office with the patient present to coordinate his/her schedule with the specialist's. In addition, the referring dentist knows immediately when the patient will be seen.

ii) when emergency care is required. Referral by telephone allows the patient to be seen more quickly.

In both these examples there is a need for the transmission of other information.

In an emergency situation the patient can be given a written report and/or radiographs, etc. to be hand-carried to the specialist.

In a non-emergency situation, the relevant referral information and records can be sent by mail, private courier or facsimile transmission.

In both cases the telephone aspect of the referral is beneficial but incomplete, and further information must be sent to the consulting specialist.

Coordination of Ongoing Care

Referral creates a new patient/dentist relationship in addition to the preexisting one between the patient and the general dentist. The nature and duration of this new relationship varies from specialty to specialty. At one end of the spectrum, many endodontic and oral surgical treatment activities are completed over a short time period, then the patient returns to the general dentist to proceed with ongoing care. On the other hand, a young child referred to a pediatric dentist may continue as a patient until the late teens. Orthodontics or extensive fixed prosthodontic treatment can span a significant time frame, and periodontal therapy, in some selected instances, requires specialist maintenance on an ongoing basis.

This being the case, the concept of shared professional responsibility for the patient's overall dental health in the short, medium and long term, is an inherent and integral part of the referral process.

To emphasize, success will be dependent upon clear, effective, and open communications between dentist, specialist, and patient. ■

Mandatory AIDS Testing Rejected

According to a report published in the American Dental Association *News* August 17, the U.S. National Commission on AIDS has announced that routine or mandatory AIDS testing of health care workers should not be a condition of employment or licensure. The commission has also made it clear that insurers should not require a negative HIV antibody test as a condition of malpractice coverage.

The U.S. National Commission on AIDS was created to advise the U.S. Congress and the President on the development of a consistent national policy on the HIV epidemic. Its 48-page report, "Preventing HIV Transmission in Health Care Settings," was released July 3, 1992.

WE'RE NOT SUGGESTING THAT CHEWING GUM SHOULD REPLACE BRUSHING AND FLOSSING. But Trident sugarless gum is serious about dental care. Serious enough to fund dental research and development, year after year. Serious enough to formulate Trident with 15% xylitol, the natural sweetener that decay-causing bacteria can't metabolize. And Trident's great taste makes it a welcome alternative to sugary snacks. So make a valuable addition to your patients' oral care program.

Recommend Trident with xylitol. The gum that dental professionals can take seriously.

Call **1-800-263-9060*** to order Trident for your patients. 180 packages of gum for $40.00, a 60% savings. Delivery in 2 weeks. *Call 9 am - 5 pm E.S.T.

New for 1993... MORE CHOICES,

Canadian Dentists' Insurance Program

Higher Limits EFFECTIVE JANUARY 1, 1993

- *Long Term Disability Insurance up to ..... $12,000 monthly*
- *Office Overhead Expense up to .....$20,000 monthly*
- *Basic Life Insurance up to $1,000,000*

TripleGuard

A low, package rate for broader office coverage:

- *Office Contents .....$25,000+*
- *Practice Interruption ...No limit*
- *Comprehensive General Liability ..... $2 million*

Data Processing Insurance

All-risk coverage for computer equipment, stored data, software and more, starting at $50.46 annual premium.

Equipment Breakdown

Covers repair or replacement of failed mechanical or electrical equipment, as well as resulting lost income.

..... Only $126.14 a year with TripleGuard,

..... $176.60 without.

EFFECTIVE IMMEDIATELY! New InstApply Service

Filling in your insurance application is quick and easy with assistance over the phone from a Personal Service Representative at CDSPI.

For more details, call CDSPI TOLL-FREE at

1-800-561-9401

Ext. 236 Western Provinces
Ext. 238 Ontario
Ext. 234 Québec, Maritimes

1-416-296-9401

Metro Toronto

AND MORE SERVICE

CDIP

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

The Modular Dental Management System, EXCEL, is endorsed by CDSPI. For information contact Zadall Systems Group Inc. Telephone 1-800-663-1236

The 15-member commission found that the use of current infection control procedures, including those used in dental offices, makes the transmission of HIV between a health care worker and patient extremely unlikely. Although it did not recommend any particular monitoring system, the commission encouraged an aggressive use of universal precautions and infection control practices, such as those suggested by the American Dental Association and the Centers for Disease Control.

The commission's report also indicated that while the actual risk of HIV transmission during health care procedures is very low, the fact that the public perceives this risk to be significant should not be ignored.

"Experts cannot wish away risk by describing it as low or by attaching other synonyms, such as remote, vanishingly small, exquisitely rare, etc.," said the report. "The commission believes it is important to acknowledge fears concerning HIV transmission in the health care setting forthrightly and address them, without allowing them to overwhelm rational judgment." ■

News From the Industry: Exan and Ash Temple Sign Marketing Agreement

John DeVries (left), the president of Exan Technologies, and Cy Elborne (right), the president of Ash Temple, shake hands on the deal that will see ASH Temple market Exan's PRO-DENT dental practice management solution.

Exan Technologies and Ash Temple Limited have signed a marketing agreement.

Under the terms of the agreement, Ash Temple's 95 sales representatives will now market Exan's PRO-DENT dental practice management solution, a computer system that includes both hardware and software.

PRO-DENT, the software component of the solution, is being billed by Exan as "an inexpensive but comprehensive dental management solution for small and medium-sized offices" that is "structured in a special way to make operation simple and easy to learn, even for staff with little or no computer experience."

PRO-DENT can be purchased independently from the hardware component of the solution. ■

Anti-Cavity Drug Marketing Rights Awarded

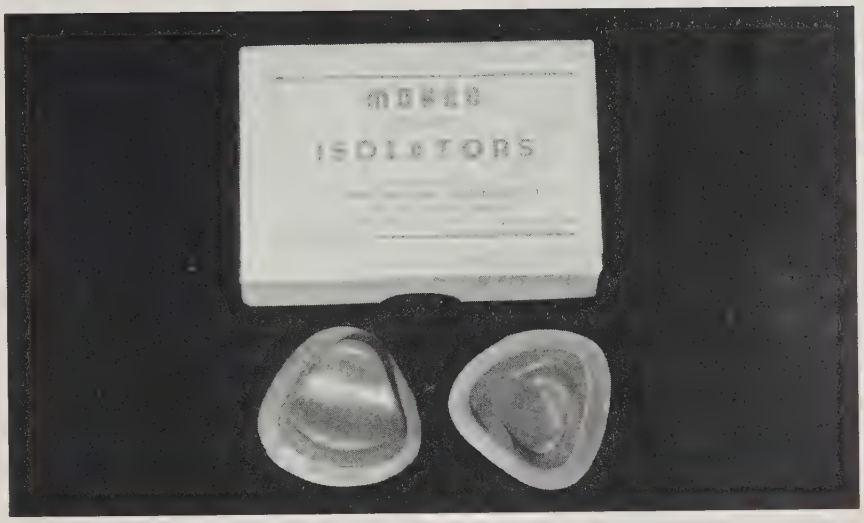
Knowell Therapeutic Technologies Inc. has been awarded the worldwide marketing rights to a new anti-cavity drug.

The Toronto-based company has signed a 14-year contract with Apotex Scientific Incorporated to market Chlorzoin, an anti-cavity varnish. Under the terms of the agreement, Apotex will continue to produce the drug at its Toronto manufacturing facility. Chlorzoin was developed in the mid-1980s by Dr. James Sandham and associates at the University of Toronto (*J Dent Res*, 67:9-14, 1988; 70:1401, 1408, 1991; 71:32-35, 1992). The drug, used in a sustained-release antimicrobial treatment and applied to the teeth in a two-stage form, is effective in the reduction of *mutans streptococci*. Its basic components are chlorhexidine acetate and tincture of sumatra benzoin. A polyurethane varnish retards the leaching of the chlorhexidine into the saliva.

For their work on Chlorzoin, the University of Toronto was awarded the Award For Business Excellence by the government of Canada in 1988.

Knowell Therapeutic Technologies is applying for new drug status in several European countries, and also hopes to receive final approval in early 1993 to market chlorzoin in Canada. Following initial submissions to the United States Food and Drug Administration, Knowell expects to obtain approval in that country in 1994 or 1995. ■

WHAT'S IT?



This month's mystery item was also the subject of our May 1992 "What's It," when we asked readers to describe how the object, called an **isolator**, was used. We also wanted to know what it isolated. Having received no correct responses to our May mystery,we are adding one more clue – the box our isolators came in.

Honestly, we really don't know what an isolator was used for. Can any of our readers help? Please contact Dr. Ralph Crawford, Journal Editor, 1815 Alta Vista Drive, Ottawa, Ontario KIG 3Y6. ■

Book Reviews

Handbook of Local Anesthesia, 3rd Ed.

by Stanley F. Malamed

1990, C.V. Mosby Co.
332 pages, 339 illustrations

This edition of Malamed's text is not remarkably different from the second edition. It remains a soft-cover book that is divided into four main sections and a total of 19 chapters. The major parts of the text are titled: The Drugs; The Armamentarium; Techniques of Regional Anesthesia in Dentistry; and Complications, Questions, and Future Trends. Once again, although reference numbers are not contained in the body of the text, each chapter is concluded with a valuable bibliography that is generally quite up-to-date. There is also a concluding bibliography at the end of the book, which is divided according to the text's four major sections. The book ends with a useful index.

As stated in the preface, this third edition of the *Handbook of Local Anesthesia* emphasizes basic concepts for the safe, efficient use and delivery of local anesthesia in dentistry.

The initial section discusses basic nerve physiology as well as local anesthesia pharmacology. Illustrating its up-to-date nature, the book discusses four of the newer local anesthetic preparations: Articaine, Lidocaine with Epinephrine 1:200,000, Ropivacaine, and EMLA (Eutectic Mixture of Local Anesthetics). The final section, Future Trends, also discusses electronic dental anesthesia.

The main thrust of this book is in Part Three, which describes regional anesthesia. This section begins with a discussion of the physical and psychological evaluation of the patient. The basic and not so basic techniques of maxillary and mandibular anesthesia are well presented and very nicely illustrated. Some of the more novel approaches include the Gow-Gates and Akinosi techniques for mandibular block, intraoral techniques for blocking the entire maxillary (second division) nerve, and periodontal ligament (PDL) injection.

There is enough new material presented in this edition to make it a valuable addition to the library of even second edition owners, and it is a must-read book for all undergraduate dental students, and even for experienced general practitioners. It includes discussions of local anesthetic techniques in a number of dental specialties, including oral surgery, pedodontics, endodontics, periodontics and dental hygiene, and would therefore appeal to virtually the entire spectrum of dental practitioners.

Reviewed by:
Earle R. Young,
Assistant professor and head, department of anesthesia, faculty of dentistry, University of Toronto and the Wellesley Hospital, Toronto.

Keep Your Smile The Family Book of Dentistry

By Dr. Daniel Kandelman

1992, R.D.M. International
205 pages, B & W illustrations

Keep Your Smile was written by a dentist to provide non-technical dental information to the general public. The book is divided into three main sections, each of which is subdivided into individual topics arranged in the form of a question. This format is somewhat confusing, although it partially compensates for the lack of an index.

The book focuses on preventive dentistry. Tooth brushing, flossing and nutrition are discussed in detail, and excellent illustrations are included in the text. The sections on dental amalgam and fluorides are also well done.

Part III, The Dentist, deals with a wide range of problems and treatment encountered in the dentist's office. The section on dental specialties is particularly informative, as it clearly describes what each specialist does and the reasons for patient referral. The roles and responsibilities of allied dental personnel are also described well.

Regrettably, the author has virtually ignored the area of infection control. Given the current concerns and public interest in the subject, a thorough discussion of the procedures now in use in dental offices may have been appropriate.

Also, perhaps because this text was originally written in French and then translated into English, grammatical errors are evident throughout the book.

But despite its flaws, if you are looking for a useful dental awareness reference for your patients, *Keep Your Smile* may be the ticket. It would certainly be helpful for patients who are interested in obtaining general information regarding dental health.

Reviewed by:
Marsha Maslove
Canadian Dental Association
Library Technician

Color Atlas of Tooth Whitening

by Gerald McLaughlin and George A. Freedman

1991, Ishiyaku EuroAmerican, Inc.
112 pages, color illustrations, $62.50 (U.S.)

This book is really an illustrated technique manual of the "Omnii White & Brite" method of whitening vital teeth. Both the clinical and laboratory procedures required in this technique are described in detail. Case selection, indications and contra-indications, precautions, and patient-focused information such as case presentation are discussed. In addition, a brief review of tooth discoloration is included, along with the author's recommended treatment modality and estimated prognosis for stain removal.

The use of this carbamide peroxide-based system is illustrated from initial patient contact through to case completion, as shown in two or three case presentations. Most chapters have summary charts of the key topics presented. The text is easy to follow, understand, and read. But while the information it contains is up-to-date, more detail could have been provided, especially with regard to other bleaching techniques that use similar materials. Non-vital bleaching is covered in one, four-page chapter. Furthermore, since in-home, patient-controlled (but dentist supervised) whitening of vital teeth is a new treatment modality for which no long-term research data is available, it would have been useful to include more clinical cases in the text.

In summary, I would recommend this book to anyone wishing to learn about the Omnii White & Brite carbamide peroxide method of tooth whitening. If a complete discussion of all tooth bleach-

ing procedures is desired, other texts will be required, however.

Reviewed by:
Dr. Paul Teplitsky, DMD, MS
Professor, Department of Restorative and Prosthetic Dentistry, University of Saskatchewan.

Facial Growth, 3rd edition

by Donald H. Enlow

1990, W.B. Saunders, Philadelphia
562 pages, B & W illustrations

Eight years after its last revision, Dr. Donald Enlow, the respected researcher, author and teacher, has provided us with a new edition of his "Facial Growth." This classic textbook on craniofacial development has been thoroughly updated and greatly enhanced by the addition of chapters on significant contemporary issues in the field. While still focusing on the fundamental aspects of facial growth, the scope of the book has been broadened through the contribution of a constellation of experts writing on topics such as T.M.J., facial heredity, and birth defects.

The superb organization of previous editions has been maintained, with some of the chapters being divided into two sections: a short introductory overview, followed by a broader and more in-depth treatment of the subject.

The book initially deals with the fundamental principles of the growth process and the plan of the human face. This information is presented as a series of concepts, which facilitates the clinician's understanding of facial and abnormal development, and supplies a scientific rationale for diagnosis and treatment planning.

Particularly noteworthy among the subsequent chapters are those dealing, in a well-documented fashion, with topics not covered in the earlier editions: heredity in the craniofacial complex, the T.M.J., craniofacial anomalies, adult facial growth, growth control and general body growth.

The text is clearly written and effectively complemented by excellent line black and white line drawings and illustrations. Especially striking are the summary diagrams, which not only permit three-dimensional visualization of the structures shown, but also simulate the dynamic directions of growth changes. The clinical illustrations are few in number, however. This is unfortunate, since they would help the practitioner to relate the basic theoretical concepts described in the text to his or her daily clinical practice.

The book's list of references, which runs to more than 46 pages, is comprehensive and up-to-date. However, it would be beneficial to the reader if every chapter had a short list of suggested readings (as provided in chapter 10).

Overall, this book serves both as an excellent introduction to the study of growth and development in the craniofacial areas, and as a stimulus to delve more deeply into the subject. Therefore, it would be a welcome addition to the library of both students and recent graduates, as well as to the collection of those who have been in practice for some time. Highly recommended.

Reviewed by:
Morris Wechsler, DDS, FRCD(C)
Professor, orthodontic section, faculté de medecine dentaire, Université de Montréal.

The cure for complex legislation

When you require prompt, reliable advice you can trust, you need a lawyer who believes in the importance of your concerns. Tracey Tremayne-Lloyd is committed to that belief, and to providing you with the level of service you need.

Since being called to the Ontario Bar in 1984, Tracey has concentrated her practice on health law and civil litigation. As the partner in charge of our Health Services Group, she provides assistance with changes in legislation, complaints and discipline, employment problems, malpractice and liability issues, infectious disease, the confidentiality of health care information and other health law-related matters. As a member of your team, Tracey can ensure you receive the service you deserve.

Tracey Tremayne-Lloyd
(416) 597-4088

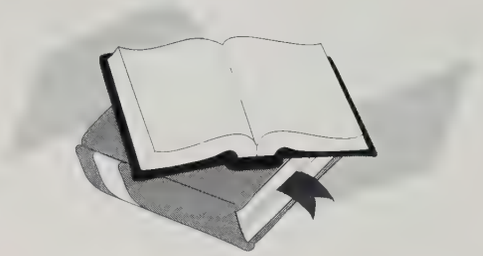
GC
GOODMAN AND CARR
BARRISTERS AND SOLICITORS

Library/Bibliothèque

Halitosis

La mauvaise haleine

1. Bennett, J.D. "An unexpected cause of halitosis." *J R Army Med Corps.* Oct. 1988; 134(3):151-2.
2. Bogdasarian, R.S. "Halitosis." *Otolaryngol Clin North Amer.* Feb. 1986; 19(1):111-7.
3. Claycomb, C.K. and Schearer, T.R. "Malodors of the mouth." *J Oregon Dent Assoc.* Summer 1986; 55(4):34-5.
4. Van Eck, C. "Some thoughts on halitosis." *J NZ Soc Periodontol* Nov. 1988; (66):19-21.
5. Fletcher, S.M. and Blair, P.A. "Chronic halitosis from tonsilloliths: a common etiology." *J La State Med Soc.* Jun. 1988; 140(6):7-9.
6. "Halitosis" *Practitioner.* Jun. 1990; 234(1490):616-7
7. Iwu, C.O. and Akpata, O. "Delusional halitosis. Review of the literature and analysis of 32 cases." *Br Dent J.* Apr. 7, 1990; 168(7):294-6.
8. Kato, T. and others. "Antibacterial effects of Listerine on oral bacteria." *Bull Tokyo Dent Coll.* Nov. 1990; 31(4):301-7.
9. Kleinberg, I. and Westbay, G. "Oral malodor." *Crit Rev Oral Biol.* 1990; 1(4):247-59.
10. Madarikan, B.A. and Rees, B.I. "Halitosis and gastric outlet obstruction in infants." *Br J Clin Pract.* Oct. 1990; 44(10):419.
11. "Management of dry mouth and halitosis." *Practitioner.* Jun. 8, 1990; 234(1490):618-9.
12. Miller, A.S. and Pullon, P.A. "Bad breath." *Gen Dent.* Jul.-Aug. 1986; 34(4):315-6.
13. Nally, F. "Dry mouth and halitosis." *Practitioner.* Jun. 8, 1990; 234 (1490):603.
14. Ogunwande, S.A. "Halitosis and abuse of antibiotics." *Ceylon Med J.* Sept. 1989; 34(3):131-3.
15. Rosenberg, M. "Bad breath, diagnosis and treatment." *Univ Tor Dent J.* Spr. 1990; 3(2):7-11.
16. Rosenberg, M. "Halitosis – the need for further research and education [editorial]." *J Dent Res.* Feb. 1992; 71(2):424.
17. Rosenberg, M. and Gabby, J. "Halitosis – a call for affirmative action." *Refu Hashinayim.* Apr. 1987; 5(2):13-5.
18. Rosenberg, M. and others. "Day-long reduction of oral malodor by a two-phase oil: water mouthrinse as compared to chlorhexidine and placebo rinses." *J Periodontol.* Jan. 1992; 63(1):39-43.
19. Rosenberg, M. and others. "Reproducibility and sensitivity of oral malodor measurements with a portable sulphide monitor." *J Dent Res.* Nov. 1991; 70(11):1436-40.
20. Rosenberg, M. and others. "Halitosis measurements by an industrial sulphide monitor." *J Periodontol.* Aug. 1991; 62(8):487-9.
21. Yaegaki, K. and Sanada, K. "Effects of a two-phase oil-water mouthwash on halitosis." *Clin Prev Dent.* Jan.-Feb., 1992; 14(1):5-9.



Aquisitions

Books

1. Carlson, D.S., ed. *Bone biodynamics in orthodontic and orthopedic treatment.* [Craniofascial growth series] Ann Arbor : 1991.
2. Kawabe Seiji. *Complete Dentures.* St. Louis Mo. : Ishiyaku EuroAmerica, Inc., 1992.
3. Newman, H.N. and Williams, D.M., eds. *Inflammation and immunology in chronic inflammatory disease.* [Proceedings of the British Inflammation Research Association.] London: 1991.
4. Richardson, E.R. *Atlas of craniofacial growth in Americans of African descent.* Ann Arbor : Univ. Michigan, 1991.

Videos – VHS

1. Epstein, Joel. *Malignant disease of the head and neck in HIV infection.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990. (29.14 min.) (Oral problems of patients with AIDS and HIV infection.)
2. Evesole, L. Roy. *Viral infection in patients with HIV infection.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990. (37.08 min.) (Oral problems of patients with AIDS and HIV infection.)
3. Gilmore, Norbert. *Epidemiology and history of AIDS* / Hatt, Rick. *Living with AIDS.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990. (48.06 min.) (Oral problems of patients with AIDS and HIV infection.)
4. Hardie, John. *Infection control and provision of care.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990. (22.11 min.) (Oral problems of patients with AIDS and HIV infection.)
5. Pindborg, Jens. *Oral candidiasis associated with HIV infection.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990. (31 min.) (Oral problems of patients with AIDS and HIV infection.)
6. Pindborg, Jens. *The global occurence of AIDS.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990. (23.29 min.) (Oral problems of patients with AIDS and HIV infection.)
7. Scully, Crispian. *Oral ulceration associated with HIV infection.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990. (26.45 min.) (Oral problems of patients with AIDS and HIV infection.)
8. Schiodt, Morton. *Salivary gland disease associated with HIV infection.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990.(26 min.) (Oral problems of patients with AIDS and HIV infection.)
9. Winkler, James; *HIV associated periodontal disease.* [Ottawa, Ont.] : [Health and Welfare Canada], 1990. (40.29 min.) (Oral problems of patients with AIDS and HIV infection.)

These videos are also available in French.

One copy of the above package of articles is available for $5.00 to all CDA members and for $10.00 to non-members. (plus GST and, Ontario residents, please include 8% provincial sales tax.)
Daily: 1-800-267-6354
Envoy: CDN.DENTAL.LIB.
FAX: 613-523-7736

Les membres de l'ADC peuvent obtenir pour 5$ et les non membres pour 10$ une copie des articles de la bibliographie ci-dessus.
Aux heures ordinaires:
1-800-267-6354
Programme informatique
Envoy: CDN.DENTAL.LIB
Bélinogramme:
(613) 523-7736

CDA Annual Meeting • Toronto 1993
April 28 – May 1

ANNUAL MEETING UPDATE

Information Overload On Every Dental Topic You Can Imagine...

The 1993 CDA Annual Meeting's scientific program will offer you an incredible variety of topics and feature a number of dental experts. Whether you want updated information about dental materials, implant maintenance, new technology in dentistry, periodontics, paedodontics, geriatric dentistry, fluorides, restorative dentistry, oral pathology, preventive dentistry, crown and bridge, aesthetics, removable prosthodontics or practice management we will have a speaker on the program to address your needs.

In addition to three full days of morning and afternoon scientific sessions, you will have an opportunity to visit a wide selection of mini-clinics and table clinics. Two rooms will be set aside in the Metro Toronto Convention Centre to accommodate the 'mini-clinics' – one hour presentations that will be delivered on Thursday, April 28th Friday, April 29th and Saturday, May 1st. In addition, table clinics will be on display in the Exhibit Hall all day Thursday and Friday.

The Scientific Program will commence on Wednesday, April 28th with four limited attendance sessions. Dentists, dental hygienists, dental assistants, office managers, receptionists, technicians and administrative personnel will want to register early to ensure participation in the full-day Practice Management Lecture featuring Dr. Burton Press of Alamo, California. If that is not up your alley perhaps a day with Dr. Terry Donovan of Los Angeles, California will meet your needs. Dr. Donovan will provide a comprehensive update on aesthetic restorative dentistry and materials. In addition to the Practice Management and Restorative Dentistry sessions, a one-and-a-half day hands-on implants program will be presented by Dr. Torsten Jemt of the Bränemark Clinic (Göteborg, Sweden). The Jemt presentation will include a full-day lecture on Wednesday, April 28th and a half-day hands-on session on Thursday morning. Also, on the Wednesday program is a presentation designed specifically for dental office staff entitled, "Enhancing the Career of Dental Reception" to be presented by Jeff Miller and Charlotte Peer Miller of the Ontario Dental Nurses and Assistants Association.

The Annual Meeting's scientific program will wrap-up on Saturday, May 1st. One limited attendance session will be offered on Saturday. Dr. Donald Yu will deliver a full-day hands-on endo-dontics program. Mini-clinics and other lectures will also be running all day on Saturday.

In the following pages you will discover the 'big names' in dentistry who will be waiting to greet you in TORONTO next spring. Register early to ensure participation in the limited attendance sessions – and feel free to call CDA Conventions at 1-800-267-6354 if you require more information.

As Scientific Chairman of this event I am committed to bringing you a comprehensive program that will complement every aspect of your dental practice – your attendance will be reward enough for the time and effort I spend to achieve this goal. I look forward to welcoming you to the 1993 Canadian Dental Association Annual Meeting, which is being hosted by the Ontario Dental Association in Toronto next spring.

Dick Ito, D.D.S.
Scientific Chairman
1993 CDA Annual Meeting Committee

Toronto, Ontario – Home of the Blue Jays and site of the 1993 CDA Annual Meeting. *(Photo compliments of MTCVA)*

CDA Annual Meeting – Toronto 1993

Limited Attendance Courses – Wednesday, April 28th

Wednesday, April 28

TERRY DONOVAN, D.D.S.

Los Angeles, California

"Aesthetic Restorative Dentistry and Materials Update"

Today's practicing dentist has the finest materials and techniques ever available for producing excellent restorative dentistry. However, many of the new materials are technique sensitive and must be used in a very specific manner to achieve clinical success. This course will review the advances in restorative materials in the past few years and present the techniques essential to produce consistent aesthetic and functional restorative dentistry.

Topics to be covered include:

- Essentials for soft tissue aesthetics on fixed prosthodontics;
- Effective gingival displacement;
- New materials and techniques for fabrication of provisionals;
- Review of impression materials;
- New impression techniques;
- Solutions for fractured porcelain: metal bonding – mystery & myth;
- Current thoughts on bonding to tooth structure;
- Conservative aesthetic techniques: bleaching, enamel microabrasion;
- Bonded porcelain: veneers, inlays/onlays, use in oral rehabilitation;
- Other current topics.

About the clinician:

Dr. Terry Donovan received his D.D.S. degree from the University of Alberta, Canada in 1967. He is currently Associate Professor and Director of Restorative Research and Chairman of the Section of Biomaterials Science at the University of Southern California, School of Dentistry. He received his certificate in Advanced Prosthodontics from U.S.C. in 1981. Dr. Donovan has recently been selected as Chairman for the Council on Dental Materials; Instruments and Equipment for the American Dental Association. He is also a member of the California Dental Association, the American Academy of Restorative Dentistry, CAIC, and the Pacific Coast Society of Prosthodontics. He is the author of numerous publications and has lectured extensively on the subjects of restorative dentistry and material sciences.

Wednesday, April 28 and Thursday, April 29 (a.m. only)

TORSTEN JEMT, D.D.S., PH.D.

Göteborg, Sweden

"Recent prosthetic advances in osseointegration ad modum Branëmark"

HANDS-ON COURSE

For those not certified in the Branëmark system, this is a certification course. This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branëmark System.

Topics to be addressed will include:

- Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- Review of the scientific background of the Branëmark system including biological considerations, biomechanical aspects and technical engineering aspects.
- Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- Prosthetic treatment planning, patient selection, indications and contraindications.
- A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.
- Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- Discussion of possible complications and how to handle them.
- Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

About the clinician:

Dr. Jemt obtained his D.D.S. in 1975 and specialized in prothodontics in 1982. His Ph.D. thesis was defended at the University of Göteborg in 1984. In 1988 he was made Associate Professor in Prosthodontics. Since 1986 he has been Associate Head of the Branëmark Clinic. Dr. Jemt has presented more than 100 lectures to professional audiences and is the author of over 30 scientific publications. He is currently involved in research on single tooth replacements.

CDA Annual Meeting – Toronto 1993

Limited Attendance Courses – Wednesday, April 28th

Wednesday, April 28

JEFF MILLER &
CHARLOTTE PEER MILLER

London, Ontario

"Enhancing the Career of Dental Reception"

As a result of an extensive needs assessment conducted recently by the Ontario Dental Nurses & Assistants Association, the 1993 CDA Annual Convention will include, on its agenda, a special limited attendance program for dental receptionists. The course is part of the ODN & AA's Network for Career Enhancement program and was created specifically for career dental receptionists to recognize the vital role they play in the delivery of dental health care services.

Using adult education techniques, Jeff Miller and Charlotte Peer Miller will use facilitation techniques to build on prior learning. Together, the participants will share experiences, explore and develop new skills, knowledge and attitudes in their chosen vocation, dental reception.

Topics to be included: communications, recall systems, accounts receivable management/collections, telephone technique, marketing, team and self-development and much more.

This program is designed specifically for continuing education and networking for Canada's dental receptionists.

About the clinicians:

Charlotte Peer Miller is the founding chair of the Committee of the Ontario Certified Dental Receptionists and a co-designer of the Network for Career Enhancement program. As an experienced Certified Dental Assistant and Certified Dental Receptionist, Charlotte is committed to the personal and professional development of the entire dental health care team. Ms. Peer Miller is also a Past President of the ODN & AA.

Jeffrey Miller, as Executive Director, has directed the growth and success of the Ontario Dental Nurses & Assistants Association for the past eight years. His many academic achievements include undergraduate and graduate studies in Science, Business Administration, Marketing, Accounting, Strategic Planning/Management, Communications and Adult Education. Jeffrey is dedicated to bridging the skill gap and facilitates long-range professional development of skills, knowledge and attitude and believes that most people have only scratched the surface of their true potential.

Wednesday, April 28

BURTON PRESS, D.D.S.

Alamo, California

"Secrets of Practice Success"

This presentation is a must for the entire team! Join Burt Press, dentistry's greatest motivator for a revealing look at what makes the winning practices tick. Decide today to take charge of your future – to experience the professional reward you deserve.

How will you ***position*** your practice for tomorrow? What are the verbal and non-verbal techniques of ***communicating for success***? Learn how to ethically promote referrals and build upon recalls. How can the ***winning team*** multiply your efforts?

In today's competitive environment, the ***new patient experience*** is critical in gaining acceptance for total treatment. You'll learn the exact details, and why success is as simple as 1, 2, 3. Focus on a daily technique which increases gross 10% without additional patients. Critically evaluate the profitability of your approach to soft tissue management. You'll be challenged and entertained. You won't fall asleep. You may never be the same!

About the clinician:

Dr. Burton H. Press, Past President of the American Dental Association, is a recognized authority on the management and marketing of dental practices. Dr. Press spent 26 years as the senior member of a California group dental practice before becoming Assistant Dean at the University of the Pacific School of Dentistry, where he is currently adjunct professor. A Fellow of the American and International Colleges of Dentists, Dr. Press is the recipient of an honorary doctorate from Georgetown University and a director of the American Academy of Dental Practice Administration. Thousands of dentists were avid readers of his monthly newsletter, *The Press Report*.

CDA Annual Meeting – Toronto 1993

Limited Attendance Courses – Saturday, May 1st

Saturday, May 1

DONALD YU, B.S., D.M.D., M.Sc.D.
Edmonton, Alberta

"Predictably Successful Endodontics in the 90's"
HANDS-ON COURSE

On Friday, April 30th there will be a two-part lecture series to complement this Hands-on Program. The lectures will be open to all delegates registered for the convention.

The high demand by an informed public for endodontic services demonstrates that general practitioners must be abreast of proven predictably successful endodontic techniques. The rationale and therapeutic end-point of endodontic therapy in relationship with clinical cases will be clarified in social, philosophical and biological viewpoints. This hands-on presentation will enable participants to find, feel, clean and shape the root canal system using the passive envelope of motion of the files and reamers. Participants will experience the proficiency of hermetic obturating with warm gutta-percha in conjunction with sealer into all the portals of exit of the root canal system.

Topics will include:

- Review of anterior tooth
  - access opening
  - cleaning & shaping
  - packing with warm gutta-percha
- Demonstration on anterior tooth
- Hands-on Schilder's technique on a mounted extracted anterior tooth
- Cases review & critique
- Questions & Answers

About the clinician:

Donald Yu is a member of the Canadian Dental Association, Canadian Academy of Endodontics, Royal College of Dentists in Canada, American Association of Endodontists, Alberta Dental Association, Alberta Society of Endodontists, Edmonton and District Dental Society, Edmonton Multidisciplinary Dental Study Club. He is a Fellow of the Academy of General Dentistry and the Academy of Dentistry International. He received his D.M.D. from the University of Pennsylvania and holds a certificate of Advanced Graduate Study in Endodontics, Master of Dental Science in Endodontics from Boston University. He has taught at the University of Alberta and is currently a visiting faculty member of Boston University. He practices full-time endodontics with his two brothers in their Edmonton Endo-Perio office.

CLINICIANS WANTED!

Present a MINI CLINIC or a TABLE CLINIC

at the 1993 Canadian Dental Association Annual Meeting hosted by the Ontario Dental Association

April 28th – May 1st, 1993

A **MINI CLINIC** is a one-hour presentation (special requests for longer presentations may be submitted) that may be scheduled as follows:

Thursday, April 29th	8:30 - 11 a.m.	1:30 - 4 p.m.
Friday, April 30th	8:30 - 11 a.m.	1:30 - 4 p.m.
Saturday, May 1st	8:30 - 11 a.m.	1:30 - 4 p.m.

A **TABLE CLINIC** is a fifteen-minute presentation that is repeated during a two to three hour period. These may be scheduled as follows:

Thursday, April 29th	9 - 11 a.m.	1:30 - 4 p.m.
Friday, April 30th	9 - 11 a.m.	1:30 - 4 p.m

Please indicate your preference of day and time (i.e. morning or afternoon) when submitting your proposal.

NOTE: Dentists and dental students wishing to present clinics are required to be ODA or CDA members in good standing.

Applicants will be advised regarding acceptance of their submissions by January 15th, 1993.

Contact: Ted Harper, c/o CDA Annual Meeting, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6 for an application form. (Please specify whether you are interested in presenting a mini or table clinic (or both!).

Preliminary Agenda • 1993 Spouses' Program

Thursday, April 29th

- Visit to the Royal Ontario Museum (ROM)
- Visit to Toronto's Harbourfront
- Lunch at the Harbour Castle Westin
- Luncheon Speaker – featuring Robin Armstrong, a local astrologer
- DIAC Tour of the 1993 Convention Exhibit Hall
- Opening Ceremony

Friday, April 30th

- Walking tour of the SkyDome
- Lunch at the Windows Restaurant – SkyDome Hotel
- Fashion Show by Toronto designer/ couturier Heather Anderson

Friday, April 30th (continued)

- Tour of the CN Tower/Tour of the Universe Attraction

Saturday, May 1st

- Presentation by OPP officers on 'Street Smarts'

Delegates may register for either one or both days. Registration to the convention, as a spouse or accompanying person is $50.00. This provides the registrant with access to the Scientific Sessions on Thursday, Friday and Saturday and the Exhibit Hall. To participate in the tours and luncheons you must register for the Thursday package and/or the Friday package at a cost of $60.00 for each day.

A Ton of Fun!

The 1993 Children's Program

(for children 6 and over)

PRELIMINARY AGENDA

Thursday, April 29th

A full-day visit to the Metro Toronto Zoo including rides on the Zoomobile and a guided tour.

Lunch at McDonald's

Friday, April 30th

A full-day visit to the Royal Ontario Museum including a tour of the museum and the planetarium.

Lunch at the Museum.

Registration for the Children's Program is on a daily basis. Each day is available at a cost of $35.00 per child.

Toronto 1993 • April 28 – May 1

Preliminary Scientific Program

Active Learning - Active Living

Wednesday, April 28

Limited Attendance Courses

"Secrets of Practice Success"
Burton Press, DDS
Alamo, CA

"Aesthetic Restorative Dentistry & Materials Update"
Terry Donovan, DDS
Los Angeles, CA

"Recent prosthetic advances in osseointegration ad modum Branëmark"
Torsten Jemt, DDS
Goteborg, Sweden

"Enhancing the Career of Dental Reception"
Jeff Miller & Charlotte Peer Miller
London, ON

Thursday, April 29

Endodontics
Stephen Buchanan, DDS, FICD
Santa Barbara, CA

"What Do You Do When Your Patient Has an Implant?"
"Periodontal Diagnostics"
Salme Lavigne, RDH, MS
Wichita, KS

"Stress: It's Your Choice"
"Burnout: A 'Bottom-Line' Problem"
Chris Christianson, DDS
Vancouver, BC

Mini Clinics

Table Clinics

Pharmacology/Anaesthesia
Stanley Malamed, DDS
Los Angeles, CA

Orthodontics
William Proffit, DDS
Chapel Hill, NC

"Changing Trends in the Use of Fluorides in the Home and in Clinical Practise"
Ernest Newbrun, DMD, PhD
San Francisco, CA

Thursday, April 29 (continued)

"New Dental Technologies"
"The State of the Profession and Prevention Revisited"
Marilyn Miller, DDS & Thomas Truhe, DDS, BSc
Princeton, NJ

Prosthodontics
Claude Lamarche, DDS
Montréal, QC

"Reluctant Children & the Dental Team... Let's Have A Party"
"Creative Paediatric Dentistry... Marvin's Garden of Tricks"
Marvin Berman, DDS
Chicago, IL

"Contemporary Dental Materials & Their Clinical Applications" (Part I & II)
Alan Boghosian, DDS
Chicago, IL

"Will You Still Need Me? ... Will You Still Treat Me – When I'm 64?"
"Oral Health & Aging: Prevention isn't Just for Kids"
Linda Niessen, DMD, MPH
Dallas, TX

"Current Clinical Research in Restorative Techniques"
Karl Leinfelder, DDS, MS
Birmingham, AL

"The Appropriate Use of Fluorides in the 90's"
Christopher Clark, DDS, MPH
Vancouver, BC

"The Power of Persuasion"
Walter Hailey Jr.
Hunt, TX

Several companies support the CDA Annual Meeting and we sincerely appreciate their generosity.

In 1992, **Calgary Copier** donated copying equipment for use on-site which allowed convention staff to better serve delegates and contributed to the overall success of this event.

CDA Conventions would like to acknowledge the support and generous contribution of **Calgary Copier** during its recent meeting held in Calgary.

If your company is interested in sponsoring or providing support for the upcoming Toronto meeting, please contact CDA Conventions at 1-800-267-6354.

Toronto 1993 • April 28 – May 1

Preliminary Scientific Program

Active Learning - Active Living

Friday, April 30

"Predictably Successful Endodontics in the 90's"
(Part I & II)
Donald Yu, BS, DMD, MScD
Edmonton, AB

Paediatric Dentistry
Peter Judd, BSc, DDS, Dip, Pedo, MSc
Toronto Hospital for Sick Children
Toronto, ON

Mini Clinics

Table Clinics

"Small Steps Toward Better Management of Infection Control"
"AIDS, Herpes & Hepatitis: Know Your Enemies"
Milton Schaefer, DDS, MLA
Peoria, AZ

"Current Clinical Research in Restorative Technologies"
Ernest Newbrun, DMD, PhD
San Francisco, CA

"The Role of Nutrition in a Healthy Lifestyle – Practical Advice"
Barbie Casselman, BAA, FnCFS
Toronto, ON

"Nuts & Bolts Management"
"Attract & Retain Good Patients & Good Staff"
Anita Jupp
Burlington, ON

"Early Orthodontic Treatment & Management of Eruption Problems, Anterior & Posterior Crossbites"
"Early Orthodontic Treatment, Management of Open Bites, Crowding & Missing Permanent Teeth"
David Kennedy, MSD, FRCD
Vancouver, BC

"Applications & Review of Dental Materials: Impression Materials & Cements"
"Applications & Review of Dental Materials: Composite Resin Restorative and Related Material"
James Sandrik, PhD
Maywood, IL

"Treatment of the Aging Patient in the Office & At Other Sites"
"Assessment & Management of the Aging Patient in the Private Practice Setting"
Ron Ettinger, MDS, DDS
Iowa City, IA

Friday, April 30 (continued)

"Creating a Successful Hygiene Department for the 90's"
"Strategies for Implementing a Non-Surgical Periodontal Program"
Annette Linder, RDH, BS
Richmond, VA

"Porcelain/Ceramic Bonded Restoration"
"Composite Resin Update"
Ross Nash, DDS
Charlotte, NC

"Predictable Success in Restorative Dentistry"
"The Maxillary Anterior Crown – Practical Suggestions for Esthetic Success"
Richard Wilson, DDS
Richmond, VA

Saturday, May 1

LIMITED ATTENDANCE – HANDS-ON
"Predictably Successful Endodontics in the 90's"
Donald Yu, BS, DMD, MScD
Edmonton, AB

***

Mini Clinics

"Prosthodontic Management of the Difficult Denture Patient"
"Lingualized Integration: An Occlusal Scheme for Edentulous Implant Patients"
Brien Lang, DDS, MS
Ann Arbor, MI

"Infection & the Oral Cavity: Herpes, Hepatitis & AIDS"
"Cankers, Chancres, Cancer – Update on Oral Ulcers"
Stewart Fischman, DMD
Buffalo, NY

"Feeling Good all the Time – A Healthy Approach to Weight Control"
Barbie Casselman, BAA, FnCFS
Toronto, ON

"The Total Team Concept"
Lorna Akervall, CDA, CDR, PDA
Thunder Bay, ON

"Bruxism & Myofascial Pain: Where are we in 1993?"
"Bruxisme et Douleur Myofasciale: Où en sommes-nous?"
Gilles Lavigne, DDS, MSc
Montréal, QC

GST Registration Number: R016845209

CANADIAN DENTAL ASSOCIATION ANNUAL MEETING

Toronto April 28 - May 1, 1993

ONE FORM PER PERSON

PRE-REGISTRATION FORM Please PRINT

To ensure your requests are accommodated – ***register early***. Advance registrations will be accepted until **March 5, 1993**. Each on-site registration will be subject to a $27.00 administrative fee (GST included).

SURNAME: _____ FIRST NAME: _____ SEX: M F

ADDRESS: _____

(Street) (City) (Province)

_____ TELEPHONE: (___) _____ (___) _____

(Postal Code) (Office) (Residence)

CDA Membership Number: _____ License Number: _____

LIMITED ATTENDANCE COURSES WEDNESDAY APRIL 28

Burton Press, D.D.S. – *PRACTICE MANAGEMENT* – All-day Lecture
Dentist ..... (7% GST included) $ 195.00 _____
Staff ..... (7% GST included) $ 95.00 _____

Terry Donovan, D.D.S. – *RESTORATIVE* – All-day Lecture
Dentist ..... $ 195.00 _____
Staff ..... $ 95.00 _____

Jeff Miller / Charlotte Peer Miller – *ENHANCING THE CAREER OF DENTAL RECEPTION* – All-day Lecture
Staff ..... (7% GST included) $ 95.00 _____

Torsten Jemt, D.D.S., Ph.D – *IMPLANTS* – Hands-on Program
• 1 1/2-DAY COURSE: WEDNESDAY AND THURSDAY (A.M.) •
Dentist (limited to 48 participants) ..... $ 350.00 _____

LIMITED ATTENDANCE COURSES SATURDAY MAY 1

Donald Yu, D.D.S. – *ENDODONTICS* – Hands-on Program
Participation in theoretical lecture all day Friday, April 30 is a pre-requisite.
Dentist (limited to 30 participants) ..... $ 195.00 _____

*** GST is included in the Limited Attendance Practice Management courses. GST is not charged on Limited Attendance Scientific courses. Lunch *is* included in Limited Attendance courses.**

ANNUAL MEETING APRIL 29,30 and MAY 1

Choose only one delegate type. 1 registrant per form.

❑ DENTIST (***Includes***: Scientific sessions, exhibits)
Member, CDA or ODA ..... $ Nil —
Non-member, Others ..... (7% GST included) $ 155.00 _____

❑ DENTAL HYGIENIST (***Includes:*** Scientific sessions, exhibits)
CDHA/ ODHA Member ..... (7% GST included) $ 99.00 _____
Non CDHA/ ODHA Member ..... (7% GST included) $ 120.00 _____
Please include proof of membership or non-member fee will apply.

❑ DENTAL ASSISTANT (***Includes:*** Scientific sessions, exhibits)
CDAA/ ODN & AA Member ..... (7% GST included) $ 69.00 _____
Non CDAA/ ODN & AA Member ..... (7% GST included) $ 99.00 _____

❑ ADMINISTRATIVE PERSONNEL / OFFICE MANAGER / RECEPTIONIST (***Includes:*** Scientific sessions, exhibits)
CDAA/ ODN & AA Member ..... (7% GST included) $ 69.00 _____
Non CDAA/ ODN & AA Member ..... (7% GST included) $ 99.00 _____

❑ TECHNICIAN
(***Includes:*** Scientific sessions and exhibits) ..... (7% GST included) $ 99.00 _____

❑ SPOUSE / GUEST (***Includes:*** Scientific sessions, exhibits)
Program Registration ..... (7% GST included) $ $50.00 _____
Thursday Tours and Luncheon (opt.) ..... (7% GST included) $ 60.00 _____
Friday Tours and Luncheon (opt.) ..... (7% GST included) $ 60.00 _____

❑ CHILDREN (6 to 12 years)
Thursday program ..... (7% GST included) $ 35.00 _____
Friday program ..... (7% GST included) $ 35.00 _____

STUDENTS MAY REGISTER ON-SITE ONLY.

❑ SOCIAL EVENTS
Opening Ceremony – Thursday, April 29 (Subject to space availability)
Will attend O Yes O No ..... $ Nil _____
Fun Night – Thursday, April 29 (per person) ... (7% GST included) $ 20.00 _____
President's Gala – "A Cavalcade of Cultures" – Friday, April 30
(per person) ..... (7% GST included) $ 75.00 _____

❑ FUN RUN – Saturday, May 1 (A.M.) ..... (7% GST included) $ 20.00 _____

❑ MATINÉE PERFORMANCE Elgin Theatre – Saturday, May 1 (2 P.M.)
"Joseph and the Amazing Technicolor Dreamcoat"
(Limited number of tickets available) ..... (7% GST included) $ 80.00 _____

TOTAL ..... $ _____

The above registration fees are paid by _____

❑ I wish to pay the above total by credit card: ❑ MasterCard ❑ VISA ❑ AmEx

Card#: _____ Expiry date: _____

Signature of Cardholder: _____

❑ I enclose a cheque **payable to the Canadian Dental Association.**
Post-dated cheques will *not* be accepted.

NOTE: Credit card orders can be faxed directly to CDA Annual Meeting at 1-613-523-3062.

ACCOMMODATION
☐ Hotel Registration Form enclosed for _____ (number of) rooms.
☐ Do not require a room / Other arrangements made
Hotel Registration Form will be available in the next issue of the *Journal*.

Mail registration form with payment to:
1993 CDA Annual Meeting
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

CANCELLATION POLICY:
Cancellation received, in writing, on or before March 5, 1993 — full refund.
Cancellation received, in writing, after March 5, 1993 — subject to a 25% administrative charge.
No refund after April 17, 1993

Dentists, Assistants, Hygienists, Office Personnel & Technicians registering by March 5, 1993 will be eligible to win two tickets anywhere Air Canada flies in Europe and North America!

Fair Pay and Then Some: How to Retain Your Staff

Last month I discussed how to hire the best and the brightest. This second article (in a series of three) outlines how to keep the best and the brightest around for the long haul.

Hiring the best and the brightest requires meticulous planning and forethought. But as you can well imagine, finding those prize employees is just the arduous beginning – you have to do your best to keep them around for the long-term.

Retaining qualified staff is not a new problem, nor is it unique to dentistry. It's simply an old problem with a '90s twist. There's a new mentality in the work force, and dentistry, like other businesses, must recognize its distinguishing characteristics.

First, despite Canada's high unemployment rate, the entry of the baby busters (or post-baby boomers) generation into the work force signifies a shrinking pool of potential applicants. The glory days, marked by an abundance of qualified applicants, are over. And not only are there less prospective employees to choose from, today's work force is more demanding than ever.

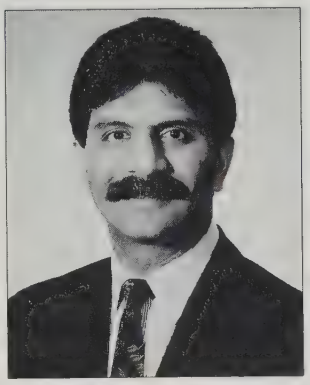
Although there's little dentists can do to increase the size of the labor pool, it's incumbent on them to meet the needs and wants of their staff. If the profession doesn't embrace this challenge, the top-notch people in the work force will look to other industries and businesses for professional fulfilment. Dentistry will then have to settle for the marketplace leftovers.

Why Staff Leave

Identifying why employees leave is the first step toward understanding how to prevent the ultimate practice malaise — staff turnover — from occurring.

When employees give their notice, they're really giving us our walking papers. They're saying, in effect: "You're fired!" Because we didn't meet their needs, they're heading elsewhere.

Certainly, there are employees who will never be happy, loyal or committed, no matter what dentists do to meet their needs. They'll move from practice to practice, never recognizing that their displeasure may stem more from their own attitudes than from the attributes of their place of work. You should be happy to get walking papers from these employees.



Imtiaz Manji B.Sc. President of ExperDent Consultants Inc.

But there are a myriad of reasons why loyal, committed, quality staff leave, too. Here are a few of the ones that rank at the top of the list:

- substandard wages or lower than expected pay increases
- lack of benefits
- lack of advancement
- verbal abuse
- boredom/lack of challenge
- not enough respect, appreciation or communication from the employer
- personality conflict with dentist or other staff
- unpleasant/unsafe work environment

Employees frustrated by these "demotivators" (or others) may not quit immediately. It's not until the frustration becomes intolerably taxing that they abandon the practice entirely. But the warning signs, indicating a lack of genuine commitment to the practice, will be there: clock watching and high absenteeism are often the insidious predecessors to staff turnover.

What's important to recognize is that employees lured to "greener pastures" believe that opportunities exist in the marketplace that will allow them to achieve what they want and need, both professionally and personally. The lesson here is: be that "greener pasture."

How to Keep the Best and the Brightest

Keeping staff, like dentistry itself, requires a preventive orientation. Whether it's a patient's mouth or a staff member's needs, the effect of neglect is the same.

Recognizing the unparalleled, make it or break it role that you play in keeping your staff happy is the key to retaining loyal, competent people. You are all-powerful when it comes to meeting (or failing to meet) staff needs. Your words and actions can be pivotal in turning a lifeline employee into a malignancy.

As mentioned earlier, the new work force is more demanding than ever. They have different values and expectations. Fair pay, as always, is expected. But it's certainly not enough. Today, it's considered not only cynical, but naive, to believe that all staff care about is how well they're paid. Though economic well-being is still very important, team members have additional "higher" needs. These include:

- **Challenging work:** People want to improve, excel and achieve. Pure endurance is not enough, They want to get better and better. And they want variety along the way. A stagnant environment yields no commitment and that leads to staff turnover.
- **Meaningful work:** Staff members need to feel that they are contributing to the larger goals and vision of the practice. (As their leader, you can best articulate what that vision is, and bring your staff on board.)
- **Recognition and appreciation:** Verbal and non-verbal acknowledgments of the staffs' contributions can work wonders in terms of providing motivation. Whether it's a word of thanks in front of a patient or theatre tickets for someone who went beyond the call of duty, everyone wants to be appreciated.

Often there is no or little cost involved in recognizing staff, but the dividends — increased morale and productivity — can be profound.

- **Training and continuing education:** New employees should be given written job descriptions, proper training, and a policy and procedures manual. Without these, they'll feel lost. Don't fall into "there's no time to train" trap. An investment in training at the beginning will save you and your team time in the long-term.

Look to companies such as Disney for models on how to train employees. Although many of their employees will not be career employees, they are all treated as prospective career employees. The lavish training does two things. It ensures that staff are capable of doing their jobs, and it sends them a message, "You're important." But you must also remember that existing employees need continuous learning, too. Encourage them to attend continuing education courses, and set up an office library. This investment not only fosters personal growth, it enhances the staff's collective skills.

- **Team management:** The new work force rejects the hierarchical, authoritative style of management. They're looking for cooperative, flat organizational structures where they can freely assert their autonomy, responsibility, and independence. In essence, they want ownership, psychic and literal, in the practice. They can live with being told what to do, but avoid telling them how to do it – this sort of over control is demoralizing.
- **A good leader:** Although staff aren't interested in a dictatorial regime, they need and value a good leader, the dentist, to set the tone. Make sure that as coach, teacher and mentor, you're setting the right example. If you reprimand staff for being late for work but fall short in making it in on time yourself, you'll cultivate a serious morale problem. As a team member, you must follow the set standards.
- **Effective communication:** Staff want to be heard. They want you to listen to their feelings, ideas, and opinions and to follow-up on them. Solicit their feedback on everything from renovating plans to how to improve your collections' strategy. Regular staff meetings — which have been credited for reducing turnover by 30 per cent — are the best forum for improving staff communication. Accept the fact that taking time out, with no patients, is not downtime. In fact, it can actually heighten productivity.
- **A promising future:** Employees need to look forward to a positive future. They won't want to do exactly the same job forever. And although a promotion isn't always needed, they'll want their jobs to evolve so that their experiences are diverse and their responsibilities are wide ranging. Employees also want to know that their financial picture will be enhanced and that their jobs are secure.
- **A positive environment:** Employees want to be both productive and happy while they're at work, particularly since this is where they spend most of their time. A warm, trusting atmosphere, devoid of tension and undue stress, is necessary not only for employee well-being, but also for the health of the practice.
- **Money and benefits:** It would be irresponsible to leave this out of a list of employees' needs. But as mentioned, adequate (or even generous) compensation cannot single-handedly motivate staff. If you don't demonstrate appreciation or respect to your staff, they'll be searching for that "greener pasture."

Summary

It may be stating the obvious, but the bottom line is this: treat staff the way you would like to be treated yourself. Appreciate, respect, recognize and reward them. Behavior that is appreciated gets repeated.

The easiest way to find out if your team is happy is to open up the channels of communication. Relieve yourself of the guesswork by asking them what they want. If you can't give them everything at once, you may be able to satisfy at least some of the items on their wish list. And when you address their needs and wants, you'll be rewarded with more loyalty and commitment than you'd ever have expected. You will be that "greener pasture" that the best and the brightest gravitate toward.

ROVAMYCINE®

Spiramycin / Antibiotic

PHARMACOLOGY: It is active against the following gram-positive organisms: S. aureus (including penicillin resistant strains), beta-hemolytic streptococci, S. viridans, S. faecalis and S. pneumoniae, C. diphtheriae, clostridia. Except for B. pertussis, H. influenzae (approximately 50% of strains) and neisseria, gram-negative organisms are generally considered as resistant to spiramycin. Bacterial resistance to spiramycin has been reported to develop, including cross resistance between spiramycin and erythromycin. However, most of the erythromycin resistant strains of S. aureus are still sensitive to spiramycin. **INDICATIONS:** For the treatment of infections of the respiratory tract, buccal cavity, skin and soft tissues due to susceptible organisms. N. gonorrhoeae: as an alternate choice of treatment for gonorrhea in patients allergic to the penicillins. Before treatment of gonorrhea, the possibility of concomitant infection due to T. pallidum should be excluded. **CONTRAINDICATIONS:** Hypersensitivity to the drug. The levels of spiramycin attained in the CSF are much lower than those in the blood and are too low to be clinically useful. Therefore, spiramycin must not be used in patients with meningitis. **PRECAUTIONS:** Administer antibiotics, including spiramycin cautiously to any patient who has demonstrated some form of allergy, particularly to drugs. The possibility of superinfection caused by overgrowth of nonsusceptible organisms should be kept in mind during prolonged or repeated therapy. If superinfection occurs, discontinue the drug and take appropriate measures. *Pregnancy:* Safety of this product for use during pregnancy has not been established. **ADVERSE EFFECTS:** Spiramycin has a low toxicity and rarely produces serious adverse effects; these include epigastric pain and abdominal discomfort, nausea, vomiting, diarrhea and skin sensitization. **OVERDOSE: Symptoms:** No case of accidental overdosage has been reported. In oral doses over 4 g/day, abdominal discomfort, nausea or diarrhea may occur. **TREATMENT:** No specific treatment has been proposed. Management should be symptomatic. **DOSAGE:** *Adults:* 6,000,000 to 9,000,000 I.U. (4 to 6 capsules of Rovamycine '500') per 24 hours, in 2 divided doses. In severe infections, the daily dosage may be increased to 12,000,000 to 15,000,000 I.U. (8 to 10 capsules of Rovamycine '500' per day). *Gonorrhea:* 12,000,000 to 13,500,000 I.U. (8 or 9 capsules) in a single dose. *Children:* The usual daily dosage is based on 150,000 I.U./kg body weight in 2 or 3 divided doses; the following calculated dosages are given as a guide (see Table 1). Spiramycin is stable in gastric juices and

TABLE 1

Body weight	Dosage in capsules of Rovamycine '250' (750,000 I.U. Spiramycin/capsule)
15 kg	3 capsules/day
20 kg	4 capsules/day
30 kg	6 capsules/day

absorption is not affected by food. In severe infections, the daily dosage may be increased by one half. In the treatment of beta-hemolytic streptococcal infections, adequate spiramycin dosage should be administered for 10 days. **SUPPLIED: Rovamycine '250':** Each orange and red capsule contains: 750,000 I.U. of spiramycin. Tartrazine-free. Bottles of 50. **Rovamycine '500':** Each grey and red capsule contains: 1,500,000 I.U. of spiramycin. Tartrazine-free. Bottles of 50.

Additional information available from:
Hoechst-Roussel Canada Inc.
Dental Division
4045 Cote Vertu, Montreal, Quebec H4R 2E8
Tel: 1-800-363-1871 FAX: (514) 333-3769

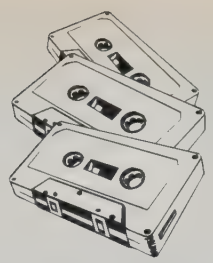
Marketed by
HOECHST-ROUSSEL CANADA INC.

RHÔNE-POULENC RORER

RHÔNE-POULENC RORER CANADA INC.*
MONTREAL
* registered user

PAAB

CANADIAN
DENTAL
ASSOCIATION



TEL AV

August 29 - September 2 /du 29 août au 2 septembre 1992

Calgary Alberta / Calgary (Alberta)

ORDER FORM / FORMULAIRE DE COMMANDES

AUDIO CASSETTE ORDERS/ COMMANDES DE CASSETTES AUDIO

Price/Prix: C-90 Cassettes $12 / each 12 $ chacune.

TO ORDER BY MAIL/COMMANDES POSTALES:

Complete this form (please print or type) and mail to :
Veuillez compléter (en lettre moulées ou dactylographier)
et poster le formulaire à:

TELAV INC.
2975 Sartelon, Montreal (Quebec) H4R 1E6

Name/Nom:.....

Company/Compagnie.....

Address/Adresse: ..... Suite #

..... City/Ville Prov. Postal Code/Code Postal

Tel./Tél.: (.....) ..... Total Encl/Incl: $.....

Cheque — Chèque / (Payable to/à TELAV)
Money order enclosed — Mandat de poste inclus. ☐

VISA ☐ MasterCard ☐ Expiry date/Date d'expiration: .....

Number/Numéro:

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Signature: .....

Date	Code		Presentations	Quant.	Total
8/29	CDA	1A	**Key Time Management Problems**		
	CDA	1B	— Jennifer de St-Georges		
	CDA	1C	**Taking the Risk out of Risk Taking**		
	CDA	1D	— Jennifer de St-Georges		
	CDA	2A	**Surgical and Prosthetic Implants**		
	CDA	2B	— Dr. Jay R. Friedman and		
	CDA	2C	— Dr. Gary O'Brien		
	CDA	2D			
	CDA	2E			
	CDA	3A	**High Tech Root Canal Flare, File, Fill**		
	CDA	3B	— Dr. Howard Martin		
	CDA	3C			
	CDA	3D			
8/30	CDA	4A	**Esthetic Restorative Dentistry and**		
	CDA	4B	**Materials Update**		
	CDA	4C	— Dr. Terry Donovan		
	CDA	4D			
	CDA	5A	**Surgical and Prosthetic Implants -**		
	CDA	5B	**Hands-on**		
	CDA	5C	— Dr. Jay R. Friedman and		
	CDA	5D	— Dr. Gary O'Brien		
8/31	CDA	6A	**Post-Orthodontic Occlusion**		
	CDA	6B	— Dr. Robert Boyd		
	CDA	7A	**Prevalence, Progression and Etiology of**		
	CDA	7B	**Periodontal Diseases** — Dr. Roy Page		
	CDA	8A	**Home Computers: Opening "Windows"**		
	CDA	8B	— Lauralynn Mealing		
	CDA	9A	**How to Feel, Fill, Thrill Accessory Canals**		
	CDA	9B	— Dr. Donald Yu		
	CDA	10A	**Bonded Restorations for Posterior Teeth -**		
	CDA	10B	**A Comparison of Available Systems** — Dr. Nathan Birnbaum		
	CDA	11A	**Cosmetic Imaging — The Ultimate Communication Tool**		
	CDA	11B	— Dr. Ken Neuman		
	CDA	12A	**Differential Diagnosis of Periodontal Diseases**		
	CDA	12B	— Dr. Roy Page		
	CDA	13	**Mountains of Challenge (CFDE Lecture)** — Sharon Wood		
	CDA	14A	**Les clés du succès en prothèse complète**		
	CDA	14B	— Dr. Claude Lamarche		
	CDA	15A	**Tax, Tips and Traps for Professionals**		
	CDA	15B	— Thomas H. Olson		
	CDA	16A	**Dental Practice Economics**		
	CDA	16B	— Dr. Jack Stockton		
	CDA	17A	**Managing Children's Behavior in the Dental Office**		
	CDA	17B	— Dr. Alan Milnes		
	CDA	18A	**Diagnosis and Treatment of Periodontal Diseases**		
	CDA	18B	— Dr. Roy Page		
	CDA	19A	**Hepatitis B and AIDS Challenges to Infection Control**		
	CDA	19B	— Dr. John Molinari		
	CDA	20A	**CDIP and CDA RSP: Your Best Insurance And Retirement**		
	CDA	20B	**Investment Choice** — Clyde A Harris & Cyril J. Gallant		
9/1	CDA	21A	**Anterior Composite Materials - An Update**		
	CDA	21B	— Dr. Ronald Jordan		
	CDA	22A	**Practice Management for the 90s**		
	CDA	22B	— Anita Jupp		
	CDA	23A	**Nutrition for the Dental Patient**		
	CDA	23B	— Dr. John McDougall		
	CDA	24A	**Prothèse partielle amovible: Conditions actuelles**		
	CDA	24B	— Dr. Claude Lamarche		
	CDA	25A	**Research and Lasers: Clinical Effects**		
	CDA	25B	— Dr. Joel White		
	CDA	26A	**Dentin Bonding Agents - An Update**		
	CDA	26B	— Dr. Ronald Jordan		
	CDA	27A	**Infection Control in a Changing World**		
	CDA	27B	— Dr. John Molinari		
	CDA	28A	**Current Techniques on Resin Bonded Restorations**		
	CDA	28B	— Dr. George W. Tysowsky		
	CDA	29	**Lasers in Endodontics** — Dr. Harold Goodis		
	CDA	30A	**Esthetics and Osseointegration**		
	CDA	30B	— Dr. Steven Lewis		
	CDA	31A	**Redefining the Recall Appointment**		
	CDA	31B	— Annette Linder		
	CDA	32A	**Nutrition in the Cause and Treatment of Disease**		
	CDA	32B	— Dr. John McDougall		
	CDA	33A	**The In-Ceram, all Porcelain Crown and Bridge System**		
	CDA	33B	— Vanik Jinoian		
9/2	CDA	34A	**Hygiene Department Development**		
	CDA	34B	— Annette Linder		
	CDA	35A	**Surgical Management of Oral Pathology**		
	CDA	35B	— Dr. Brian Whitestone		
	CDA	36A	**Coronal radicular Build-Ups — Current Concerns**		
	CDA	36B	— Dr. Terry Morgan		

Price/ C-90 Cassettes _____x $12 =
Prix: C-90 Cassettes _____x 12 $ =

Handling: $1.50 @ cassette up to 6 cassettes _____X $1.50 =

Manutention:1,50 $ @ cassette jusqu'à concurrence de 6 cassettes ____x 1,50 $

Sub Total/Sous Total:

Please add 7% GST to Sub Total
Ajouter la TPS de 7% au Sous Total
(GST/TPS # R105164933)

Quebec residents please add 8% PSTto Sub Total:
Résidents du Québec ajoutez 8% TPS au Sous Total:
(PST/TPS # 10-0203-6904-0001)

TOTAL:

** Please send completed form with payment to: /*
Prière de compléter le formulaire avec le paiement à:

TELAV INC.
2975 Sartelon
MONTREAL
(QUEBEC)
H4R 1E6

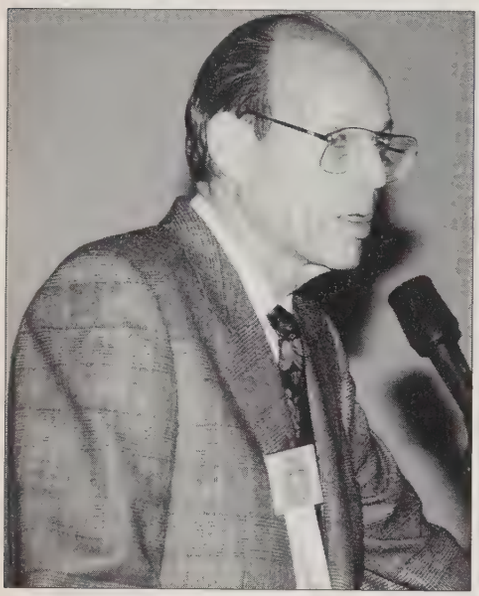
Tel.: (514) 856-0455
Fax: (514) 856-0480

Computers In Clinical Dentistry

P. Ralph Crawford, BA, DMD

An international conference on "Computers in Clinical Dentistry" attracted more than 500 dentists from a dozen countries to Los Angeles, California, September 18-20.

Much of the conference was dedicated to a detailed discussion on the latest computer-oriented systems and devices available in dentistry today, with a focus on moving the computer from the front desk to the clinical operatory. It provided the participants with a unique opportunity to learn not only from lecturers, but also from developers, manufacturers, vendors, and, importantly, their fellow practising dentists.



Dr. Jack Preston, Department of Continuing Education, U.C.L.A. — Conference Director

The conference was the brainchild of Dr. Jack Preston, the chairman of the department of continuing education at the University of Southern California's School of Dentistry. His intent was to create a forum where developers, vendors, and users could learn about each other's needs and abilities.

"The conference also arose from some personal frustrations at not being able to use different computer applications in the same environment, and the recognition that for the users and vendors to obtain optimum benefit from the emerging technologies, a concerted effort toward integration was necessary," he said.

Dr. Ronald Goldstein, Atlanta, Georgia, moderates the "Battle of the Intraoral Cameras." (photos courtesy ADA News)

During the three-day conference, 35 experts from Canada, China, France, Germany, Great Britain, Japan, Sweden, Switzerland and the United States spoke on a wide range of computer applications. There was no "sky-wars" dreaming, however. In every instance, the speakers emphasized techniques and systems that they are currently using successfully in their own offices. And, without doubt, many of these systems will soon be commonplace in dental offices around the world.

VIDEO INVESTMENT

$150,000.00 (U.S.) for video concept

10 MILLION DOLLARS minimum potential return

Serious inquiries only

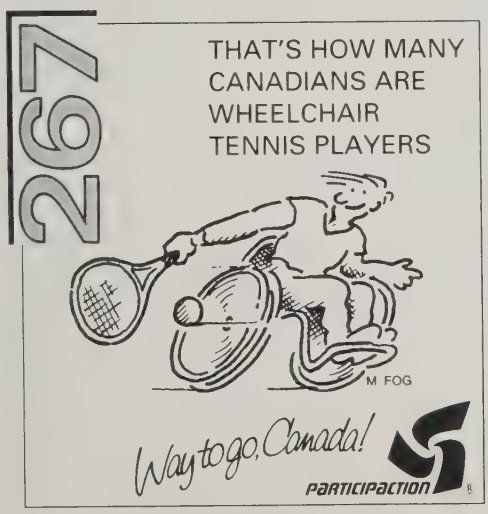
(416) 246-9113 (416) 861-9043

Among the topics presented were:

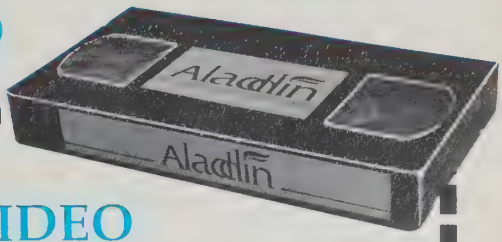
- the "paperless dental office," where the only paper evident would be the patient's medical/dental record, which would be retained in a bottom drawer.
- the computer in speech recognition and clinical charting.
- imaging management systems using optical scanning technology.
- dentistry through the eyes of an intraoral camera.
- CAD/CAM.
- radiovisiography/digital radiography.
- occlusal analysis.
- computers in dental school curriculum.
- computers in periodontics.
- artificial intelligence.
- electronic data interchange.

An interesting diversion from the conference's lectures was the "Battle of the Intra-Oral Imagers." It gave eight imaging-management system manufacturers an opportunity to demonstrate their products to the conference members, who could then grade each system on its ease of us, resolution, color accuracy and oral access. In light of the many different systems on the market today, the demonstration was a unique and useful exercise. The *Journal* will publish the tabulated "battle" results when they become available.

Another highlight of the conference occurred when the International Academy of Computerized Dentistry, which had its origins in France, elected Dr. Francois Duret as its new president. The academy also elected three section chairmen for Europe, Asia, and the Americas.



WILL A COMPUTER REALLY HELP YOUR PRACTICE?



Our **FREE VIDEO** will answer all your questions !

See the best in Dental Practice Management Systems on our new demo tape. This informative, 18-minute video shows everything the **single-dentist practice** needs to know to make the right computer decisions.

Now, in the comfort of your home or office, you and your staff can learn about the latest computer technology for the dental profession. With no sales person to pressure you and absolutely no obligation, you'll learn about:

- HARDWARE
- SOFTWARE
- TRAINING
- GUARANTEE
- AND MUCH, MUCH MORE !
- CDAnet ELECTRONIC BILLING
- ACCOUNTS RECEIVABLES
- PATIENT RECORDS
- RECALL SYSTEMS

PHONE TOLL-FREE, TODAY 1-800-668-2868
to receive your FREE "Aladdin System" VHS video from

Ho & Associates Computer Systems Ltd.

Dental Practice Specialists with over 10 years experience in Canada..

IBM Authorized Agent

IBM is a registered trademark of International Business Machines

Dentists At Risk: An Interview With Dr. Bob Brandon

Dr. Robert Brandon of London, Ontario, was recently awarded the Canada Volunteer Award Certificate of Merit from Health and Welfare Canada. In the words of Benoit Bouchard, the federal minister of health, the award was made "in recognition of his valuable contribution toward improving the health and social well-being of his fellow citizens."

Dr. Brandon, who is currently on the executive council of the Ontario Dental Association (ODA) and a member of the board of governors of CDA, has participated in ODA's Dentists at Risk program for many years.

Journal: *Dr. Brandon, let's go back to the beginning. How did you get started in dentistry?*

Dr. Brandon: I had been out of school for six years, working for a large financial conglomerate, and had worked my way up to be a vice-president by age 23. But as I looked around the corporate world, I became disenchanted and thought I would try for dentistry – it seemed to be more challenging.

Journal: *When did you graduate?*

Dr. Brandon: In 1974, from the faculty of dentistry at the University of Western Ontario. I immediately began private practice in Marathon, Ontario. In 1977, I returned to Western and established the business of dentistry course. I was also associated with a teaching health centre that was jointly operated by the faculties of dentistry and medicine. The dental students rotated through the health centre for their dental practice management training. And, as if I didn't have enough to do, I also practised privately in the evenings at the university hospital.

Journal: *How long did this routine carry on?*

Dr. Brandon: Until 1984, when a car accident – black ice and a collision with a gravel truck – put me into this wheelchair.

Journal: *Was this about the time you became interested in the Dentists At Risk Program?*

Dr. Brandon: Yes. I had spent six months in hospital, from March of '84 to October '84, which is about the time that the program began. Several individuals within the Ontario Dental Association, Dr. Bill Glave, Dr. Jim Golem, Dr. Jeff Bolton and Dr. Neil Farrell perceived a need within our profession for a totally confidential assistance program for our colleagues in difficulty.

These dentists, from September 1984 until the spring of 1985, worked mostly within the concept of assisting those who had a chemical dependency. I was discharged from hospital at the same time that they were looking for more volunteers, and that's when I became involved.

Today, the Dentists at Risk committee consists of six dentists, one dental hygienist and one dental assistant. I chaired the committee from 1986 until 1990. The current chairman is Dr. Jim Golem, one of the founding members.

Dr. Robert Brandon of London, Ontario, is presented the Health and Welfare "Canada Volunteer Award" by Dr. Les Allen, CDA past-president, during the CDA Convention in Calgary last August.

Journal: *Those involved in the program must be pretty special individuals. What was the spark that got you involved?*

Dr. Brandon: I suppose it was related to my car accident. Up until then – and I realize the probability of my being killed in that accident was very high indeed – I was your typical dentist. I was working from 8 to 5 at the teaching health centre, and then from 6 until 10:30 at night in the hospital...

Lying in the hospital for months on end, I became involved in stress management, and it dawned on me how uncertain life really is and how much we take for granted. And what a tragedy it is taking things for granted.

It was after I came out of hospital and eventually became mobile in a wheelchair that I was approached by Jim Golem and Neil Farrell to serve on the committee.

Journal: *In looking for volunteers to assist in the program, does the committee deliberately seek out people who have had some sort of a problem.*

Dr. Brandon: In many cases, the two go hand-in-hand. We often look for someone who has a significant life event, such as chemical dependence, burnout, an accident, whatever. They have made that tough trip through life themselves, and know the circumstances.

3M
HAS TURNED THE TIDE IN RESTORATIVE DENTISTRY

Experience the New 3M Restorative Z100™ and Scotchbond™ Multi-Purpose Adhesive

9206MG2255E

Innovation working for you™

3M

Lying in the hospital for months on end, I became involved in stress management, and it dawned on me how uncertain life really is and how much we take for granted. And what a tragedy it is taking things for granted.

Journal: What does the program encompass – drugs, booze, emotional instability, abuse, the whole gamut?

Dr. Brandon: You're right, there is a whole range of problems. About one-third of all the calls received by the committee involve chemical dependency, accompanied by all the other problems that come with it. The other two-thirds involve many of the problems related to professional burnout syndrome – including suicide, marital dysfunction, unhappiness within the family unit and financial stress. Added to this are all those unrealistic perfection expectations that come with being a dentist.

Journal: You mean dentists are more prone to burnout?

Dr. Brandon: Let me say at the outset that I believe dentists are among the most caring individuals in the world. They care deeply for their patients and, combined with that, they are ultra-perfectionists. They were probably high achievers and ultra-perfectionists going into dentistry, and I think those tendencies are honed to a very fine edge in dental school.

The dentists' own expectations of themselves, and of their patients, is very unrealistic. They expect to be perfect themselves and, in turn, expect their patients to be very grateful, but very often they aren't. Dentists are therefore far more at risk for professional burnout syndrome and chemical dependency.

Journal: Does being a dentist, with easier access to drugs, make dentists more likely to become dependent?

Dr. Brandon: I am not aware of any specific study that confirms it, but I know of one treatment centre in Ohio that specializes in helping health care professionals, and their figures suggest the risk of chemical dependency for oral surgeons is about 25 times higher than it is for the general population. In terms of dependence on prescription and injectable drugs and nitrous oxide, this may suggest that dentists have more access to drugs, and possibly oral surgeons and anesthesiologists have even more access than general practitioners.

Journal: What can a dentist do to avoid burnout?

Dr. Brandon: I think that Dr. Peter Hanson, the author of *The Joy of Stress*, is on the right track when he says we should pamper ourselves more and look for ways to be kind to ourselves. As a profession, we are giving, giving, giving, and we need to take time to recharge our batteries. So many of our colleagues are not doing that.

The pressure of economics and the general condition of the world around us today doesn't help. The increasing emphasis on advertising within our profession, and the tendency away from a collegial relationship toward a competitive one, tends to lead to isolation. I find this disturbing.

Journal: Are there typical signs that indicate a dentist may be affected by professional burnout syndrome?

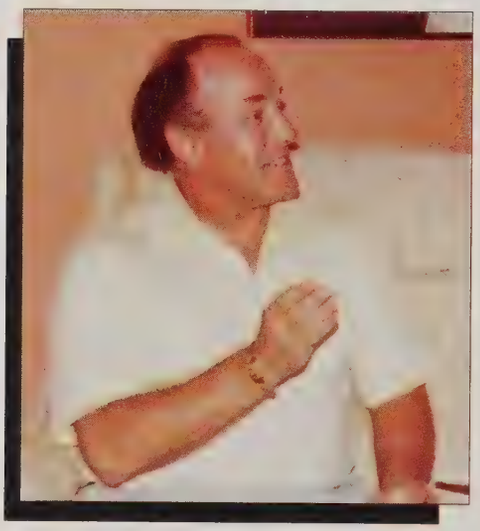
Dr. Brandon: It is often characterized by being disenchanted with life, withdrawing from friends and family and the profession. Often, there is a feeling of incompetence and self-doubting and a loss of confidence. This is accompanied by second and third guessing on everything, and a divestment of all but the simplest tasks within dentistry. There is a losing of focus on the meaningful things in life.

Too often, these dentists can't talk to others about the feelings they have about themselves, or about how they aren't in control of everything around them. They seem to feel that it is a weakness to open up and talk to someone else. They don't seem to understand that one of the greatest coping mechanisms in the world is to call on a friend and discuss our problems.

Journal: What about the signs of chemical dependency?

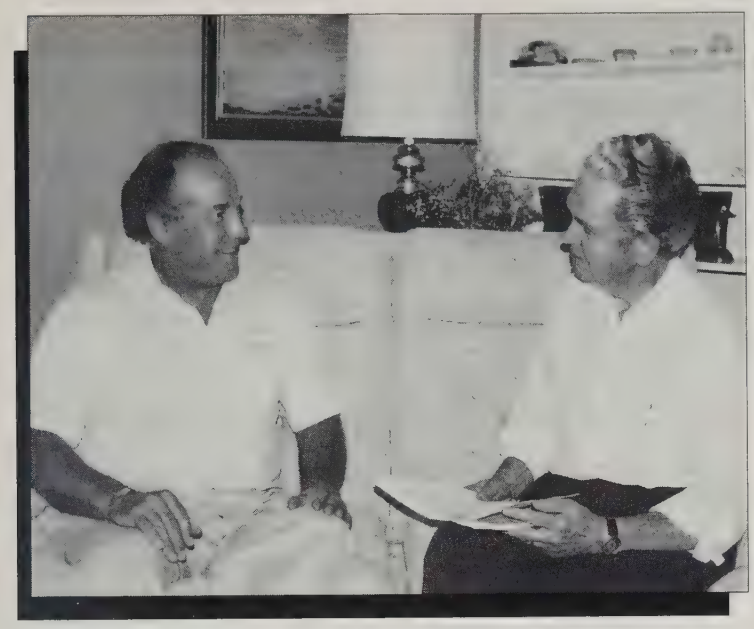
Dr. Brandon: The usual pattern is a dentist who is inappropriately managing stress by using alcohol. The last thing a dentist will allow alcohol to affect is the practice – they will usually binge drink on the weekend. However, as the disease progresses, they tend to go into withdrawal and develop typical symptoms of withdrawal – tremors, fatigue, backaches, malaise. They will then start to premedicate themselves with self-prescribed drugs – diazepams, codeines, percodans – feeling they are completely safe in doing so because they understand the drug.

The important thing to understand is that although they are completely dependent on alcohol and the prescription drugs they are ingesting, these dentists absolutely do not recognize the dependency. It is a total disease of denial.



They don't seem to understand that one of the greatest coping mechanisms in the world is to call on a friend and discuss our problems.

Many times they will say, "The very fact that I can drink as much as I do and not show it proves that I am OK." In fact, that's called tolerance to the chemical and proves just the reverse. If you combine that with a blackout or two, if a dentist is able to function – walk, talk, and drive – but wakes up the next



Journal editor Dr. Ralph Crawford discusses the ODA Dentists At Risk program with Dr. Robert Brandon.

morning unable to remember that piece of the evening when he or she was indeed functioning, it is almost diagnostic of having the gene for chemical dependency. It is very easy to fall over that line to a dual addiction, and we are seeing a lot of that.

Journal: *Are there particular stages in life where chemical dependency is more demonstrable?*

Dr. Brandon: Yes. Very often the disease of chemical dependency demonstrates two different periods of progression. One has an earlier onset and is very rapid. First drink at age 17 and full-blown dependency by graduation from dental school at age 23 or 24, when the individual drinker can consume an incredible amount of alcohol with tolerance.

There is another onset later in life and it also is a tragic event. That first drink at age 17 seems to progress very, very slowly until around age 55. Then we see dentists getting up to their 60s, approaching retirement, whose financial affairs haven't been managed well over the years. They don't have a whole lot to look forward to in their retirement and then they hit bottom.

Thanks to people like Peter Dennett of CDSPI – who seems to perform miracles with some of these retirement problems – these older dentists very often are able to receive help, but they have to seek it out. This is where our program comes in. We are here when our colleagues need us.

Journal: *From what age bracket does your committee receive most of the calls?*

Dr. Brandon: We don't have a data base, because of the absolute confidentiality of the program, but, anecdotally, the most common age range for chemical dependency and professional burnout syndrome inquiries is clearly 38 to 43. It seems to be very heavily centred in that range.

Journal: *Are chemical dependency and professional burnout syndrome treatable?*

Dr. Brandon: The good news is that they are treatable – if they haven't led to suicide beforehand. I can tell you that to date we have had some 35 suicide interventions.

A typical case might involve a dentist calling to say, "I have a bottle of 100 demerol pills in my hand and see no reason in going on." Remembering the ODA brochure on the Dentists At Risk Program, he or she then says, "Can you give me any reason for not taking the pills?" Just by talking to that dentist we can prevent a tragedy.

Journal: *Is there any truth to the rumor that dentists have a higher incidence of stress, suicide, heart attacks and divorce than the general public.*

Dr. Brandon: I believe the incidence is greater, but I must emphasize that to the best of my knowledge there are no concrete studies available to illustrate this. Anecdotally, I would say yes.

Because of the care-giver personality of the dentist, the giving of oneself to others, the unrealistic expectations, the fact that there may be more individuals in the profession with a genetic predisposition to chemical dependency, I tend to believe that we are more susceptible to distress and burnout than the general public.

Journal: *If a patient walked into a dentist's office here in London, or anywhere in the country, would there be signs that the dentist was in trouble?*

I can tell you that to date we have had some 35 suicide interventions.

Dr. Brandon: An interesting question. The staff would certainly perceive there was a problem, whether chemical dependency or burnout. They would see the changes and deterioration in the dentist's behavior.

Hopefully, and this is the great virtue of the program, they could call in complete confidentiality and relate the circumstances. This is one of the reasons that we have a dental hygienist and dental assistant on the committee. Dental auxiliaries are often more comfortable talking to their peers. From the patients' point of view – and I'm basing this on the more than 700 calls that we have already handled – the office would not be in any great disarray. The dentist might be a little short-tempered and irritable, but generally speaking the last thing he or she will allow chemical dependency to affect is the practice. The last thing a dentist suffering from professional burnout will let anyone within the practice see is what's going on in their personal life. They will put on their office face, their office mask, and this, of course, just speeds up the process.

This is the great virtue of the program, they could call in complete confidentiality

This masking will continue until a crisis erupts, such as throwing things around in the operatory in front of a patient. We hope that someone will call the professional association, the licensing body or the Dentists At Risk program before the crisis arises.

I must say at this point that the licensing bodies and associations are extremely cooperative – they are never in the punitive mode, but definitely in the rehabilitative mode for these issues.

Journal: *You said there have been over 700 calls to the committee since its inception. Has the rate of calls increased with time?*

Dr. Brandon: Yes, there is a very gratifying increase.

Journal: *We don't understand. How can an increase be gratifying?*

Dr. Brandon: Because I think the increase is the result of the confidence that the profession has in the program and it's absolute confidentiality. Dentistry is a very small community, and there are few secrets within it, but I can assure you that there has never been a confidentiality lapse in the Dentists At Risk program.

Journal: *What percentage of the profession is at risk?*

Dr. Brandon: According to the Addiction Research Foundation and the U.S. Treatment Center, the street norm for chemical dependency is from 10 to 18 per cent. Dentists are at as much risk as the general public for chemical dependency, and if we come from a chemically-dependent background, our risk is four times greater than the general public's, probably in the 15 per cent bracket.

In talking about chemical dependency, I don't want, even for a second, to underestimate the tragedy of professional burnout syndrome. It seems to be growing, largely as a result of inappropriate coping mechanisms within our environment, manpower issues and the demands of dentistry today – like Saturday and evening hours.

The good news is that both tragedies – chemical dependency and burnout – are treatable.

Journal: *What closing words of advice do you have for our fellow professionals – the dentists, dental students, dental hygienists, and dental assistants?*

Dr. Brandon: There are three main issues to consider. First, don't set unrealistic expectations for yourself and others. Realize that we are human and that we are allowed to be less than perfect. Second, pamper yourself. Realize that you are a care giver who gives of yourself to others over and over again throughout the day. Take time for yourself, your family, and to recharge your batteries. Third, if you see or feel yourself experiencing difficulty in any area – or someone else points it out to you – seek help early. Don't put on that office face and tough it out. Seeking assistance is not a weakness, it is the strong thing to do. We are fortunate in dentistry that we have the camaraderie we have – we don't leave our wounded on the battlefield.

Need Help?

Do you, or does someone you know, need help for a life-event problem? Each province has a confidential program similar to ODA's Dentists at Risk program. Call your provincial dental association or licensing body today.

ANNOUNCEMENT

The membership of The Canadian Academy of Prosthodontics and the Canadian Academy of Restorative Dentistry are pleased to announce their merger effective September 25, 1993, into the:

CANADIAN ACADEMY OF RESTORATIVE DENTISTRY AND PROSTHODONTICS

The new organization will be comprised of a membership totalling more than 200 general dentists and specialists. The annual Scientific Meeting will draw from the strengths of each of the founding organizations and will be devoted to the furthering of fixed, removable and implant dentistry in Canada.

Planning is well under way for the 1993 meeting scheduled for October 28-30, 1993, in Halifax, Nova Scotia. Information on membership and/or convention registration may be obtained from the Secretary-Treasurer, Dr. Graham Matheson.

Dr. Graham Matheson
1901-805 West Broadway
Vancouver, BC V5Z 1K1
(604) 873-5104, FAX (604) 879-5122

CFDE Grant Applications Due

The deadline to apply for a CFDE dental education, research or service project grant is December 31, 1991.

Each year, CFDE supports a variety of individual education, research and service projects to promote and improve the quality of dental education, and to help increase public awareness of dental care. Preference is given to projects affiliated with dental schools and dental auxiliary programs.

Applications should be submitted in letter form, and must contain a full description of the proposed project, including a budget and funding sources.

For further information, please contact:

Canadian Fund For Dental Education
1815 Alta Vista Drive
Ottawa, Ont. K1G 3Y6
613-731-0493

CFDE FCED

Stress factors and coping strategies in the dental profession

Rita Zakher, DMD
Maurice Bourassa, PhD
Montreal

ABSTRACT

Stress is inherent in dental practice. Identifying stressful factors is the first step toward coping with the insidious nature of stress, as preventive measures can then be efficiently established. While numerous studies have been conducted, none of them has identified a specific stress factor that is common to all practitioners, which demonstrates the multifactorial and multidimensional aspects of dental stress.

Key Words: dental stress.

SOMMAIRE

Le stress est une partie inhérente de la dentisterie. L'identification des différentes sources de stress est le premier pas nécessaire pour aider le dentiste à faire face à la nature insidieuse du stress. De cette façon, des mesures efficaces de prévention peuvent alors être établies. Aussi nombreuses que sont les études, aucune ne peut identifier un facteur commun à tous les dentistes, démontrant l'aspect multifactoriel et multidimensionnel du stress dans la pratique dentaire.

Mots clés : stress, dentistes.

Stress is an important issue that has received a considerable amount of attention in the dental literature. In recent years, concern about stress has become a universal topic, and the detrimental effects of stress on health and longevity are recognized by the medical and scientific professions.

The literature on dental stress (and on stress in general) is quite exhaustive. Numerous authors have written on the subject, each with their own perception of what is causing stress. They all seem to offer a different solution. In fact, each author tends to put forward his or her stress-coping strategies first, implicitly giving the reader the impression that this is the only truly effective remedy, and that by following it, all ailments will be cured. However, this is not so.

Therefore, the findings reported in the dental literature must be thoroughly analyzed and integrated. If this is not done, the information these papers provide is purposeless, as the reader is left to decide what is accurate and what stress-coping strategies are effective.

This study explores the various stressors affecting dental practitioners and their physical, mental, occupational and social effects, as well as the various stress-coping strategies available.

For the majority of dentists, these stressors manifest themselves through numerous illnesses or conditions (ulcers, insomnia, depression, irritability). For some, a lack of ability to cope with stress leads to suicide or drug and alcohol abuse. It is important to keep in mind that although the rate of suicide for dentists (8.3 per cent) is higher than that of the general population (3.8 per cent), it is still not at an alarming level, as most people tend to believe.

The first part of this article will deal with the sources of stress for dental practitioners. In 1981, William C. Goodwin[1] published the results of his survey. His questionnaire, which was directed at graduates, was divided into four sections. Each section sought information concerning different aspects of the graduates' opinions and experiences with regards to dental education and the practise of dentistry. One of them included questions pertaining to stress and anxiety in dentistry, with an emphasis on the sources of stress and suggestions for possible means of handling such stress.

The questionnaire included both open-ended and objective questions, and required about 30 minutes to complete. It was mailed to 200 participants who had graduated, in the early summer of 1978, from an elective course designed to prepare students to handle stress and anxiety in the dental office. The data were analyzed by coding the open-ended responses and tabulating the objective responses.

Responses were received from 133 practitioners, a 66.5 per cent return rate. In response to an open-ended question asking individuals to identify factors that were sources of greatest stress, five factors were identified by a substantial percentage of the respondents:

73 per cent – patient management

50 per cent – business management

38 per cent – idealism

33 per cent – staff management

26 per cent – time

Obviously, it is important to know what aspects of dental practice were included in each factor. In this survey, patient management most often included some reference to patient fear and anxiety, which, in turn, was transferred to the dentist. However, such items as late or missed appointments, patient dissatisfaction, discussion of fees, and the patients' image of the dentist were also indicated. When business management was cited as a source of stress, it was usually in reference to problems concerning the collection of payment for services rendered. This category also included specific statements regarding cash flow, insurance companies, accounts receivable, nonpaying patients, overhead, and taxes. Idealism as a source of stress usually reflected the perfectionism that these respondents were encouraged to develop in school, and a sense of frustration with the distance between that standard and the day-to-day activities in their practices. Related comments indicated that a small number of individuals were fearful of failure in practice.

Where staff management was con-

TABLE I
Impact of 25 possible stressors (N = 977)

Possible Stressor	How stressful? (%) Not at all	A little	A fair amount	Very much
Falling behind schedule	13	36	35	16
Striving for technical perfection	10	41	36	15
Causing pain in patients	15	43	30	12
Anxiety in patients	10	50	33	8
Patients late for or missing appointments	15	44	29	12
Patients uncooperative in chair	16	46	26	13
Physical demands of practice	22	44	27	8
Having to train new assistants	28	38	25	9
Insurance company requirement	24	43	27	6
Government regulation	26	43	22	9
Feeling responsible for patient's oral health	27	44	22	7
Patients not complying with advice	18	55	22	4
Having to contain your own emotional reactions	22	51	20	6
Having too few patients	42	33	17	8
Unrealistic patient expectations	24	54	19	4
Having too many patients	45	33	18	4
Not making enough money	40	39	16	5
Long working hours	42	38	16	4
Getting along with staff	33	50	13	4
Getting along with patients	36	47	14	3
Lack of patient appreciation	28	56	14	2
Patients not accepting the preferred treatment	34	50	13	2
Too much of same kind of work	49	38	11	2
Competition from other dentists	54	36	9	1
Isolation from other dentists	68	26	5	1

cerned, interpersonal relationships were identified as sources of stress. The details involved with handling the management of a small business and the problems associated with incompetent staff were prominently mentioned. Lack of time was also seen as a source of stress, with particular reference to the tensions created in the office when treatment fell behind schedule.

In this particular survey, except for the comments related to idealism, almost no mention was made of stress that was attributable to problems with dental procedures or techniques. The technical aspects of the dental practice did not seem to be a source of stress at all. Therefore, it may be implied that the respondents felt technically well prepared by their education, and thus felt little stress in this area.

Although income is not seen as a problem and a source of stress in practice, collections and cash flow were seen as sources of difficulty. This may indicate that the interpersonal nature of collections and fee explanations is a source of stress, as opposed to the level of income earned. Again, the business management and interpersonal aspects of the practice seem to lead to more stress than some of the more straightforward aspects of organizing and running a practice.

Another survey was conducted by O'Shea[2] in 1984 using a longer list of items and with a large group of dentists (1,977) at a national dental meeting. Dentists participating in the Health Screening Program at the 1982 annual session of the American Dental Association in Las Vegas were asked to complete a two-page questionnaire on stress. Questions sought some practice characteristics, but focused on the dentists' own perceptions of the various sources of stress in their practices. Respondents were asked to rate 25 possible stressors in terms of how stressful they found each in their current practice (not at all; a little; a fair amount; very much). The results, which demonstrate a wide range of behaviors and factors, appear in **Table I**.

Characteristics of the Respondents

A total of 977 questionnaires were completed by American dentists in active practice. Of these, 89 per cent were in general practice and 11 per cent were specialists. Virtually all respondents (97 per cent) were male. The median length of time in practice was approximately 20 years; the number of patients seen per week was approximately 60; the hours worked about 36 per week; and the median size of staff, including the responding dentists, was 4.5 persons.

In general, these characteristics closely approximate those found for all American dentists. However, the 1982 annual session was held in Las Vegas, and dentists from the West were overrepresented, whereas those from the northeast and South were underrepresented.

Findings

How do dentists perceive the stress of dentistry and their own stress levels?

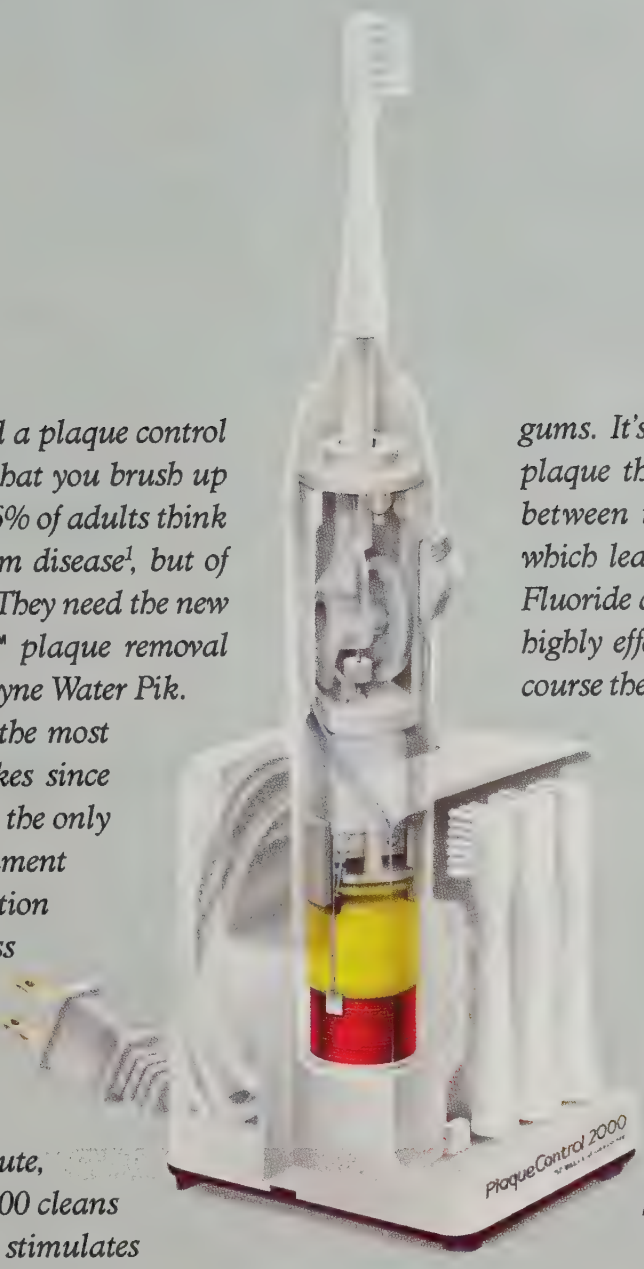
Three of four dentists perceive dentistry as being more stressful than other occupations; few think it is less stressful; and about one-fifth believe it is equally as stressful as other occupations.

In addition to general questions, the survey asked the respondents how stressful they found each of 25 sources of possible stress in their current practice. **Table I** lists these possible stressors in approximately descending order, based on the importance given to them by the respondents. The catalogue of stressors was constructed to offer a wide range of responses.

Although somewhat long, the list appears to identify real problems. Almost every item elicits a response from at least 50 per cent of responding dentists, indicating that it is a source of some stress. On the other hand, the list does not contain any items that are widely endorsed as being stressful.

It also appears that particular stressors affect individual dentists differently, as suggested by the distribution of answers to a follow-up question: "Which one of the listed stressors do you find the most stressful in your practice?" Falling behind schedule, patients late for or missing appointments, and uncooperative patients were most frequently nominated. However, virtually every item was the "bête noire" of some

The most acclaimed brush strokes since Van Gogh.



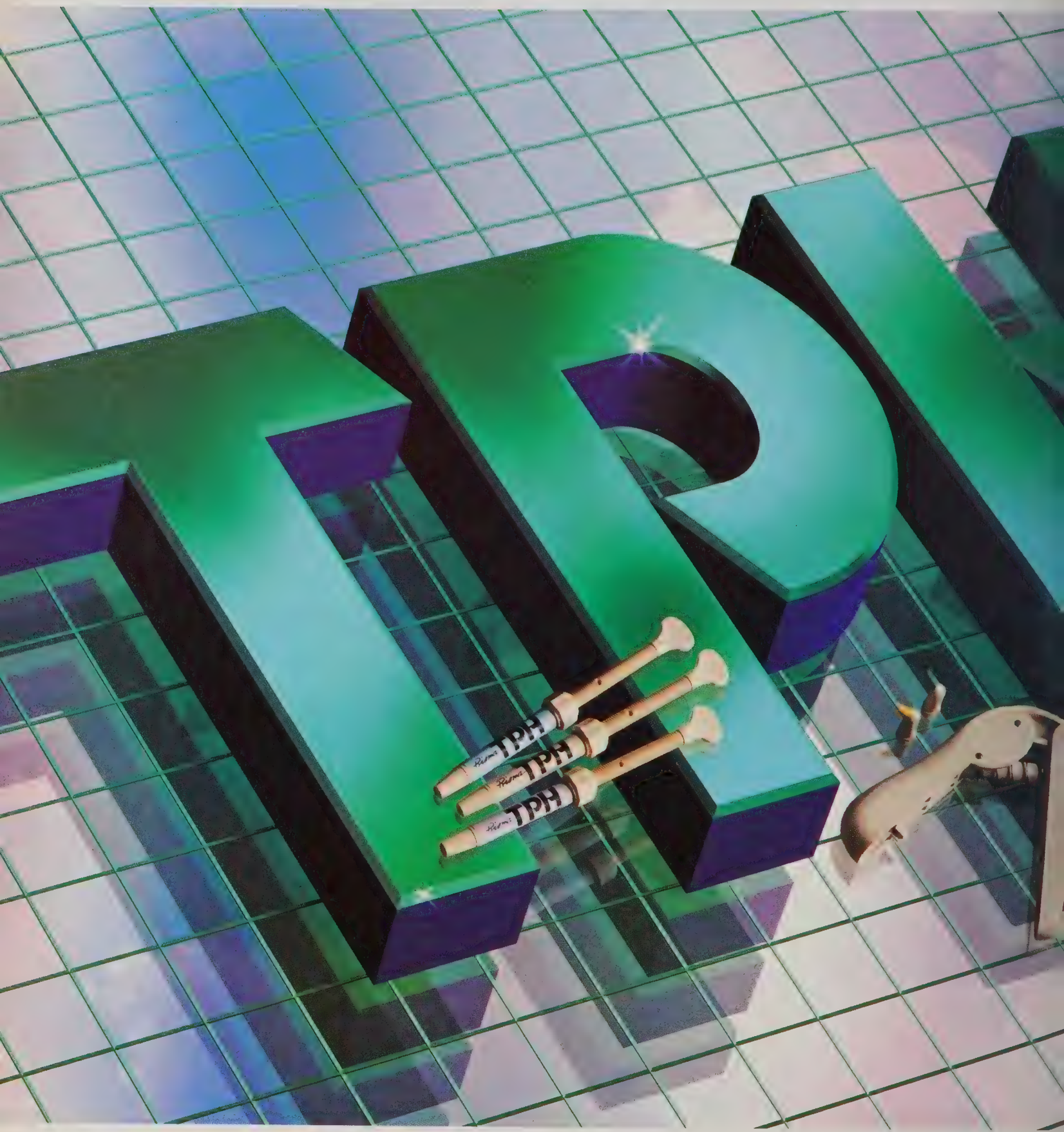
Before you recommend a plaque control program, we suggest that you brush up on a couple of facts: 76% of adults think they won't develop gum disease[1], but of all adults, 75% will[2]. They need the new PlaqueControl 2000™ plaque removal instrument from Teledyne Water Pik.

We like to say it has the most acclaimed brush strokes since Van Gogh because it's the only plaque removal instrument with the brushing motion that simulates the Bass technique, which is most recommended by dental professionals. With 2000 elliptical brush strokes per minute, the PlaqueControl 2000 cleans teeth thoroughly and stimulates gums. It's clinically proven to remove the plaque that manual brushing can miss, between the teeth and at the gumline[3], which leads to improved gingival health. Fluoride dentifrices have been shown to be highly effective in reducing cavities, so of course the PlaqueControl 2000 is designed to use any dentifrice, without extra maintenance. Best of all, the PlaqueControl 2000 is made by Teledyne Water Pik, a trusted name in professional dental products. So next time you're recommending a plaque control program, consider our new PlaqueControl 2000. It's a work of art.

PlaqueControl 2000™
TELEDYNE WATER PIK

1. Source: Lou Harris Study, February 1991. 2. Source: American Dental Association. 3. Ciancio SG, Mather ML: Clinical comparison of two electric toothbrushes with different mechanical actions. *J Clin Periodontol*, in press.

Ju



dge it on its *abilities.*

Introducing Prisma TPH, Total Performance Hybrid.

- **Unparalleled polish*ability***
- **Outstanding dur*ability***
- **Vita® shade*ability***
- **Incredible cure*ability***
- **Uncanny work*ability***

Prisma TPH composite represents a breakthrough in composite technology. Its "Total Performance" formula is the first to combine a proven resin with a new photoinitiation system and an optimally balanced particle size distribution. It is, in short, the ultimate expression of esthetics and function.

Polish*ability.* Prisma TPH composite gives you a more natural-looking restoration. With a surface that's as smooth as glass,[1] highly reflective and as lustrous as a microfil.

Dur*ability.* The Total Performance Hybrid is even more impressive. Clinically, you get 46% better wear resistance in posterior restorations[2] and greater toughness for stress-bearing anteriors. It's the result of a markedly enhanced flexural modulus of elasticity for reduced micro-flexing and less debonding at the filler/resin interface.

Vita shade*ability.* Another benefit of Prisma TPH composite. For predictable shade matching, order from 10 Vita shades, plus 10 extra colors for special cases.

Cure*ability.* It comes from a technological advancement in the photoinitiation system. A higher degree of conversion[3] means greater curing efficiency and better depth of cure.[4]

Work*ability.* Another hallmark of Prisma TPH composite. It never strings, slumps or sticks. It stays where it's placed. And it always holds its contour.

Judge it for yourself. Call your Caulk Canada distributor—or call us at 1-800-263-1437—for more information.

Dentistry by Dr. Michael Goldfogel, Englewood, CO

Prisma™ TPH™ TOTAL PERFORMANCE HYBRID™

Judge it on its *abilities.*

[1] Profilometer tracings by Wayne W. Barkmeier, D.D.S., M.S. [2] Karl Leinfelder, D.D.S., M.S. [3] Brandywine Research Laboratory. [4] D. Barnes, D.D.S. Vita is not a registered trademark of Caulk/Dentsply.

Caulk Canada
Dentsply

Caulk Canada Division Dentsply Canada Ltd.

Innovations you can put into practice.

© 1992 Dentsply International Inc. All Rights Reserved.

practitioners, as every item was nominated by at least one dentist as being the "most stressful."

The 25 items were also examined through an exploratory factor analysis to find out what dimensions in the stress sources might emerge. The aim was to reduce the 25 specific stressors to a smaller number by identifying some underlying and general variables. The results suggested that most of the serious stressors fall into certain clusters, which might be interpreted as:

1) Patient compliance problems: the dentist is faced with patients who do not cooperate in their care, forget advice and do not show up for appointments. Included are the stresses caused by patients' anxiety and pain. All interfere with the practitioner's ability. This factor, by far, is the major cluster, accounting for more than 60 per cent of the common variance.

2) Interpersonal relations problems: i.e., getting along with patients and staff, coping with others' expectations, controlling one's own feelings, and dealing with a lack of appreciation.

3) Physical strain of work: i.e., long hours and too many patients.

4) Economic pressures: These include concerns about money, competition, and too few patients.

5) Outside constraints: i.e., constraints imposed by government and insurance companies; and,

6) Perfectionism: i.e., the pressures inherent in striving for ideal dentistry and feeling responsible for the patients' oral health in a real and imperfect world.

These dimensions are not entirely independent of one another. Because this clustering is based on a single sample, which was not scientifically selected to represent all American dentists, it can only be considered hypothetically, and needs to be validated in other research. Several factors, however, seem congruent with the studies performed, and would seem to be applicable to practising dentists.

The six individual items that were ranked most highly by survey respondents seem to form a pattern. Most are threats to the dentist's ability to operate efficiently and effectively. These prominent stresses also seem to relate particularly well to patient needs and the behaviors likely to occur in the operatory itself, and in the dentist's daily round of work. Several are outside of the dentist's control: patient anxiety, uncooperativeness, pain threshold, and tardiness, for example. Falling behind schedule may result from various causes, but a lack of punctuality on the part of patients is likely to be a frequent factor. It is also obvious that many of these prominent stresses are interconnected. For example, a "stacked-up" waiting room creates pressure to work more quickly than is comfortable, which, in turn, threatens ideal performance. This also leaves less time to cope with patients' anxiety, and anxiety may increase the experience of pain, begetting uncooperative behavior in the chair.

Three-fourths of those surveyed think dentistry is more stressful than other occupations, but an equally high proportion believe that they are under less stress than other dentists. Perhaps this is another instance of "collective ignorance." Individuals make one reply when reporting about a group, but their aggregated individual replies present a different picture of the same group. In any case, it seems apparent that dentistry's image as a stressful occupation is part of dental culture. Within the wide agreement about dentistry's image, however, personal experience also seems to have an effect. The more stressed the dentist currently feels, the more likely he or she is to believe that things are worse now than they were 10 years before. The more stress perceived currently, the more likely he or she is to see dentistry as "tougher" than other occupations. Those who perceive situations as having become more stressful are also more likely to define dentistry itself as being more stressful than other occupations.

Several studies indicate that stress is inherently present in the practice of dentistry. Bourassa and Baylard[3] conducted a study to help identify what factors underlie this stress and to determine the relative contribution of each factor.

A questionnaire provided 52 potentially-stressful situations related to dental practise. Dentists were asked to rate each situation on a five-point scale that allowed a range of responses from "not stressful" to "exceedingly stressful," and from "I don't know" to "not applicable." The present data are based on the ratings given to each situation by the 1,332 dentists practising in Quebec (52 per cent of all dentists in the province) who answered the questionnaire.

Ten situations received a mean score greater than 3.0 and were thus considered as above average stress-producing situations. The respondents were consistent in their rankings of the relative stressfulness of these 10 situations (Friedman, $p< 0.001$). The majority of these stressful situations could be classified as being related either to dental procedures and office organization, or to interpersonal relationships. It was found that the older age groups showed significantly less stress for six of the 10 most stressful situations (Kruskal-Wallis, $p< 0.005$). Similarly, salaried dentists showed the lowest levels of stress for eight of the 10 factors.

This study made it possible to pinpoint specific situations that promote stress for most dentists. Precise identification of these situations allowed stress to be "circumscribed" by making it lose its vague and insidious character. One of the objects of this research is to update the profession's knowledge of situations that could lead to the appearance of stress in the dentist's practice. An analysis of the results showed the multifactorial dimension of the phenomenon. In other words, the variability of responses cannot be explained by a precise phenomenon, but rather by a group of stressful factors.

Indeed, the situations presented as stress factors are not stressful per se as described by the variance of results. Stress is a subjective response induced not only by a specific situation, but also modulated by other factors related to demographic lifestyle variables, psychological factors and traits of character. In a context of prevention, it would be important to put the emphasis on further research, which should be directed toward a better preparation of dental students to help them cope with stressful situations in their professional life.

These results have indicated the specific situations that most frequently lead to stress in dentists. The precise identification of these situations could lead to reduced stress through the elimination of its vague and insidious character. Furthermore, an understanding of the most common situations that generate stress makes it possible to take preventive measures designed to eliminate its damaging effects in dentistry.

Conclusion

Stress is an inherent part of life. No one can escape from it. Stress is part of being an adult and of having responsibilities toward oneself and others. Den-

tists also have the added burden of being independent, self-employed business people. In addition to their financial responsibilities, they have problems specific to their profession – back problems, confinement, etc. This does not make for an environment that is helpful in facing the stressors that dentists are confronted with on a daily basis.

Some stressors are external and stem from job demands and environment, while others are internal, stemming from the dentist's own expectations and his or her continually striving for perfection. Despite the fact that dentists are well educated, they encounter many stresses as a result of the doctrine that was ingrained in them from the beginning of dental school: anything less than perfect is the equivalent of failure. No human being can live with that heavy burden, because perfection is not of this world.

Therefore, stress management for dentists should begin in dental school, by changing the philosophy of perfection. Dental schools can also contribute to stress management by teaching future dentists strong administrative and business skills. Current surveys indicate that dentists lack these skills, which, in turn, creates stress.

A third responsibility of dental schools, in helping to control stress, is to teach stress-reducing behaviors. In addition, they must paint a realistic picture of what the life and work of dentists is really like, and take care not to overinflate the expectations of the students. Disillusionment was a strong and common feeling among the dentists surveyed.

Stress management mechanisms are offered in abundance in the dental literature, but without any realistic evaluation of their effectiveness. It is therefore unclear which mechanisms really work. Further research is needed, and the resulting data should be published in the dental literature.

Dentists need to know that their stress can be controlled, and they should be taught by competent experts how to use stress-coping behaviors effectively. We already know that some stress-coping mechanisms can be quite beneficial, but must learn to use them properly (e.g., exercising once a month is almost useless, but regular exercise can work wonders). ■

Dr. Zakher, *a graduate of the University of Montreal, is now in private practice.*

Dr. Bourassa *is a professor in the faculty of dentistry, University of Montreal, Montreal, P.Q. H3C 3J7.*

Reprint requests to **Dr. Bourassa.**

References

1. Goodwin, W.C. Identification of sources of stress in practice by recent dental graduates. *J Dent Educat* 45:220-221, 1981.
2. O'Shea, R.M. Sources of dentists' stress. *JADA* 109:48-51, 1984.
3. Bourassa, M. et Baylard, J.F. Facteurs de stress dans la pratique de la médecine dentaire: résultats d'une étude menée auprès des praticiens québécois. *J Dent Qué* 29:1992.

Beavers Burs

Offering a 45 year track record of quality

Beavers Dental
P.O. Bag 900, Morrisburg, Ontario
K0C 1X0

Phone: (613) 543-3791
Fax: (613) 543-2525

Dental care for the psychiatric patient: chronic schizophrenia

David B. Clark, *DDS, M.Sc., MRCD(C)*
Whitby, Ontario

ABSTRACT

In recent years, there has been a shift in philosophy concerning the overall delivery of mental health services. As a result, the treatment and management of patients with various psychiatric and behavioral disorders have undergone some fundamental changes. Improved diagnostic and treatment modalities have, in many instances, reduced the need for long-term institutionalization for a large number of these patients. Consequently, community-based mental health agencies (e.g., group homes, homes for special care patients, etc.) are now assuming an increasingly important role in the long-term management of these patients, providing, for example, more sophisticated mental health promotion programs and counselling services. A greater positive interaction now exists between these individuals and the surrounding community, thereby encouraging a more favorable integration within society as a whole.[1]

Due to this shift from primarily an institutional-based treatment regimen to a more community-oriented approach, the general dental practitioner can expect to see and be requested to treat an increasing number of these patients, many of whom present with significant dental pathology.

The purpose of this paper will be to provide an overview of the oral health findings and management protocols for those individuals suffering from one specific form of psychiatric illness — chronic schizophrenia. An attempt will be made to familiarize the practising dentist with the main psychopathological features of this disorder as well as the specific oral health care requirements and management protocols for these patients. It is hoped that dental practitioners within the community will begin to feel more comfortable in formulating and executing specific dental treatment plans for those patients who may be undergoing long-term outpatient treatment for chronic schizophrenia.

SOMMAIRE

Au cours des dernières années, les idées ont beaucoup évolué touchant l'ensemble des services de santé offerts aux handicapés mentaux, ce qui a entraîné de grands changements dans le traitement et la gestion des patients qui ont des problèmes d'ordre psychiatrique et des troubles de comportement. Dans de nombreux cas et pour un grand nombre de ces patients, parce qu'on pose un meilleur diagnostic et qu'on offre de meilleurs traitements, il n'est plus nécessaire de faire un séjour prolongé dans un établissement de santé. Aussi les services communautaires de santé mentale comme les foyers d'accueil et les maisons offrant des soins spéciaux jouent-ils un rôle de plus en plus important dans la gestion à long terme de ces patients, leur offrant par exemple des programmes de promotion et des services d'orientation plus avancés. Entre eux et leur entourage, il y a maintenant une interaction plus favorable pour les encourager à s'intégrer davantage dans la société en général.

Ainsi donc, au lieu de placer les handicapés mentaux dans des institutions, on préfère les intégrer à leur communauté et, à cause de cette nouvelle approche, le dentiste généraliste est plus susceptible de voir et de devoir traiter un plus grand nombre d'entre eux, dont plusieurs avec de grands problèmes dentaires.

Dans cet article, on présente un aperçu général des découvertes faites en santé dentaire et des protocoles de gestion à l'intention des personnes atteintes d'une maladie mentale particulière: la schizophrénie chronique. On tente d'expliquer au dentiste les principales caractéristiques psychopathiques associées à cette maladie ainsi que les services dentaires particuliers que les personnes atteintes peuvent avoir et le protocole de gestion à suivre avec elles. On espère ainsi que les dentistes seront plus à l'aise pour dresser et exécuter des plans de traitement pour les schizophrènes qui ne sont pas placés dans des institutions et qui font l'objet de soins prolongés.

Schizophrenia is a psychiatric illness that is best characterized as a disturbance of mind and personality which, during some phase of its existence, is manifested by delusions, hallucinations and distinct alterations in modes of thinking and mood. In the United States, epidemiologic studies reveal that between one and two per cent of the general population currently have or will suffer from this distressing illness during their lifetime.[2-6] It is estimated that approximately one-quarter of all hospital beds in the United States are occupied by schizophrenic patients.[5] Onset occurs most frequently during adolescence or early adulthood. However, the development of this disorder in later adulthood has been reported in the literature.[2,7] Further studies report an earlier onset of the disease in males but, in general, no specific sex predilection has been described.[2,5]

Hereditary factors have begun to play an increasingly important role in the etiology and pathogenesis of many psychiatric disorders, including schizophrenia. This suggests that many of these illnesses may have, in part, a genetic basis.[8] Family studies reveal that first-degree relatives (the parents, siblings, and offspring) of patients with schizophrenia possess a risk factor for developing the disorder 18 times higher than relatives of control subjects.[2,5,8] Twin studies of schizophrenia have shown a consistently higher concordance rate in monozygotic versus dizygotic twins, with monozygotic twins

Table I:

Summary of Symptomatology Associated with Schizophrenia

Symptom	Manifestation
Hallucinations	auditory, command type, tactile (electrical, tingling, burning sensation) somatic (e.g., sensation of worms crawling inside the mouth)
Disturbances of affect	absence of emotion monotony of speech cold, incongruous attitude lack of expression
Delusions	persecutory type reference type thought broadcasting thought insertion thought withdrawal being controlled by others
Thought disturbances	incoherent speech rapid shift of ideas poor relation of thoughts
Psychomotor disturbances	grimacing repetitive, awkward movements rigidity mutism pacing
Impaired interpersonal relationships	social withdrawal emotional detachment
Dysphoric mood	depression, anxiety, anger
Lack of self-care, motivation and initiative	poor oral/general hygiene dental caries periodontal disease
Ritualistic, stereotyped behavior	

possessing a risk factor for schizophrenic illness 40 to 60 times greater than that of the general population.[8]

Diagnostic criteria for schizophrenia must rule out any organic causative factors and require that the signs of the illness be present for at least a six-month period, including an active phase with characteristic psychotic symptoms. This active phase may or may not be accompanied by a distinct prodromal or residual phase.[1-3] The prodromal phase is highlighted by a specific decline in the level of functioning, i.e., social withdrawal, neglect of self-care, difficulty in communication with people, lack of initiative, illogical thinking, inappropriate behavior and expression. These "negative" symptoms were described by Andreasen and co-workers[4] in their proposed subtyping of schizophrenia based on the symptomatology of the disease, who illustrated how such findings correlated with the chronicity of the disease, making rehabilitation difficult for the patient. On the other hand, the active or psychotic phase of this disorder is typified by so-called "positive" signs and symptoms such as hallucinations, delusions, thought disturbances and catatonic behaviour. These positive symptoms have been proposed to correlate with a better response to neuroleptic medication and more favorable levels of functioning.[4]

During the active or psychotic phase of the illness, auditory hallucinations are among the most prevalent of the positive symptoms. The patient may report hearing their own thoughts aloud or hearing the voices of other people making derogatory or defamatory comments about them. Delusions are well-developed, firm convictions, often leaving the individual to feel that they are unable to control their own thoughts or actions, but rather, that they are under the influence of an "outside" force or power. Thought broadcasting, thought insertion and thought withdrawal are common experiences that are also noted during this phase. Psychomotor disturbances may be observed during this phase of the illness, characterized by grimacing, pacing, hyperactivity, incoherent speech, rigidity or mutism.

The active phase may often be followed by a residual phase with features similar to those of the prodromal period, including a flattened affect and an impaired level of functioning. Delusions and/or hallucinations may persist to a lesser degree during this stage. The usual course for the schizophrenic patient has been one of acute exacerbations of the active phase of the illness, intermixed with episodes of residual decline, which in many people lengthen after years of affliction. A review of the symptoms associated with schizophrenia is summarized in **Table I**.

Although the exact mechanism of schizophrenia remains as yet unknown, recent studies implicate some dysfunction at certain sites within the brain, specifically the prefrontal cortex, basal ganglia, ventral striatum and septo-hippocampal system.[9-11] These regions have also been identified as sites of dopamine innervation. McKenna,[9] in his review of the pathogenesis of schizophrenia, describes how both an excess and deficiency of dopamine may manifest itself in the positive and negative symptoms of schizophrenia. Excess levels of the neurotransmitter dopamine lead to delusions, hallucinations and thought disorders, while a dopamine deficiency within the prefrontal cortex, for example, leads to a lack of spontaneous speech and volition. Other investigators[10] have also reported abnormalities of both regional cerebral blood flow and cerebral metabolism in some schizophrenic patients. In particular, deficient prefrontal blood flow and inadequate glucose metabolism have been demonstrated in these individuals.

Medical Management

Individuals with chronic schizophrenia require a management protocol encompassing a variety of psychotropic medications, periodic hospitalizations and, on discharge from hospital, an environment within the community that will foster positive social interactions, promoting their self-esteem and sense of well-being.

Neuroleptic medications (antipsychotics) are the principal drugs currently used to treat psychiatric illnesses such as schizophrenia, and are designed to control the more overt symp-

toms of hallucinations, delusions and thought disturbances (**Table II**). Outpatients are often managed with long-acting (depot) injections. The antipsychotic effect of these medications is derived essentially from a blockage of dopamine receptors (D-1, D-2) in the brain, inhibiting an excess of dopamine.[5,12] Unfortunately, these drugs are not without a multitude of side effects, which are often encountered before the therapeutic benefit of the medication is realized. One of the more common and early reactions to various neuroleptic agents are movement disorders (acute extra-pyramidal syndromes), which consist of muscle spasms of the eye, neck and back, and restlessness manifested by pacing, fidgety movements and shakiness. These particular side effects have been correlated with a concomitant blockage of dopaminergic receptors (D-2) in the basal ganglia, thereby blocking normal regulation of motor activity via extra-pyramidal tracts.[5,13,14] There may be a progression to symptoms indistinguishable from Parkinson's disease, consisting of tremors, rigidity and bradykinesia. Casey and Keepers,[14] in their review of the side effects of neuroleptic therapy, further describe a subgroup of the extra-pyramidal syndromes, termed the rabbit syndrome. This particular entity is characterized by rhythmical tremors in the lips and perioral musculature.

All patients undergoing long-term treatment with neuroleptic agents are at risk of developing tardive dyskinesia. This is a disorder characterized by rhythmic and involuntary movements of the tongue, face and jaw as well as the extremities, leading to abnormal chewing movements, facial tics and constant movement of fingers, hands and toes. Studies in the literature report that this disorder will be diagnosed in between 20 and 25 per cent of those individuals undergoing treatment with antipsychotic medications.[14-16] Risk factors reported to be influential in this regard include the patient's age, a female sex predilection and a prior history of extra-pyramidal reactions to neuroleptic agents. Chances of reversal of tardive dyskinesia appear to be inversely proportional to age and, as well, directly correlate with the length of time that the patient remains off of neuroleptic medications.

In an effort to counteract these extra-pyramidal side effects of the various antipsychotic agents, patients are often prescribed anti-Parkinsonian medications. The most common of these include benztropine mesylate (Cogentin), trihexyphenidyl HC1 (Artane), procyclidine HC1 (Kemadrin) and amantadine HC1 (Symmetrel). Unfortunately, these particular drugs exhibit side effects similar to those of the antipsychotic group of drugs and, thus, are initiated only if necessary to treat the extra-pyramidal symptoms. Patients are then periodically reassessed for any change in the frequency and intensity of specific muscular side effects and movement disorders.

An additional antipsychotic medication, Clozapine (a dibenzodiazepine derivative), has recently been introduced for limited use in the United States and Canada for those schizophrenic patients whose illness is refractory to treatment with any of the currently-available neuroleptic agents. Viewed as an atypical antipsychotic drug, Clozapine was found not only to be effective in treating both the positive and negative symptoms of schizophrenia, but also exhibited significantly fewer muscular side effects and less risk of tardive dyskinesia.[17-23] This latter feature is attributed to the ability of Clozapine to more selectively block D-1 dopamine receptors with much less effect on the D-2 receptors in the basal ganglia and, therefore, less propensity for extra-pyramidal side effects. Hypotension, drowsiness, sialorrhea and tachycardia are frequently reported adverse effects to Clozapine, but these tend to subside with continued drug usage.[23]

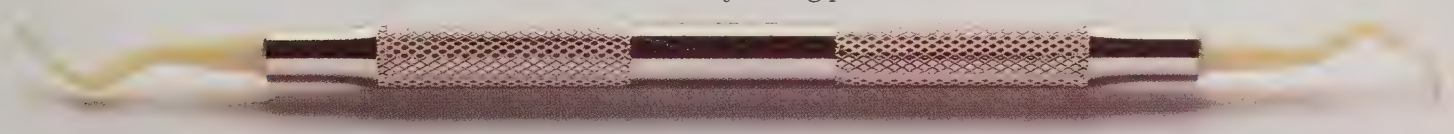
The most serious side effect of Clozapine is agranulocytosis (white blood cell count less than 2,000/mm^3), the incidence ranging from between one and two per cent of the patients receiving the medication. This risk is approximately 10 times greater than that found due to phenothiazine therapy[17,23] and, appears to manifest itself during the sixth to 18th week of Clozapine therapy. The development of this potentially fatal hematological disorder does not appear to be dose related and does not correlate with any known predisposing factors. Preliminary investigations have proposed an immunologically mediated mechanism as one theory behind the development of this adverse effect.[17] As a result, patients receiving Clozapine must have weekly monitoring of their white blood cell counts to assess for the development of a leucopenia, which would necessitate immediate cessation of Clozapine therapy. While the full therapeutic potential of this drug remains overshadowed by the relatively high incidence of drug-induced agranulocytosis, Clozapine therapy, in carefully selected cases, offers a very significant alternative to the pharmacotherapeutic management of those patients with chronic schizophrenia refractory to the more traditional antipsychotic treatment regimens.

Table II:
Commonly Used Neuroleptic Agents in the Pharmacotherapeutic Management of Schizophrenia

Class	Generic Name	Trade Name
Phenothiazines	Chlorpromazine	Largactil
	Fluphenazine deconate	Modecate
	Trifluoperazine HC1	Stelazine
	Pipotiazine	Piportil
	Methotrimeprazine	Nozinan
	Perphenazine	Trilafon
Diphenylbutyl-piperidines	Fluspirilene	Imap
	Pimozide	Orap
Thioxanthene	Flupenthixol	Fluanxol
Butyrophenone	Haloperidol	Haldol

OUR LATEST INSTRUMENT HAS ITS STRONG POINTS.

Hu-Friedy introduces Implacare,™ the revolutionary implant maintenance instrument featuring Hu-Friedy's disposable Plasteel™ curette tips. Made from a high-grade resin, Plasteel tips are more rigid and less flexible than all other plastic implant maintenance instruments. This makes them superior for removing plaque and calculus without damaging titanium abutments. Combine these paired curette tips with Hu-Friedy's quality handle, and you have an instrument that allows you to perform procedures with greater ease and effectiveness. So ask about Implacare. The only implant maintenance instrument with this many strong points.



Introducing Implacare.
The new implant maintenance instrument.

Hu-Friedy®
(312)975-6100

© 1991 Hu-Friedy

Oral Manifestations

In a comparison of the oral health of individuals with and without mental illness in the community setting, Stiefel et al[6] reported a significant increase in dental disease in a group of persons undergoing psychiatric rehabilitation.

Pharmacotherapeutic, physiologic and behavioral considerations all serve to render those patients suffering from mental illness at a greater risk for dental caries, gingivitis, periodontal disease and soft tissue pathology. Other factors may include poor oral hygiene, the fear of dentistry, poor dietary habits and lack of financial resources.[24]

The profound anti-cholinergic action of the various antipsychotic and anti-Parkinsonian medications used in the management of schizophrenia must be viewed as a major factor in the incidence of both hard and soft tissue pathology in these individuals. Numerous studies have demonstrated that prolonged xerostomia results in a marked increase in dental caries (especially cervical caries), an exacerbation of gingivitis and periodontal disease and generalized painful oral mucositis.[8-10,12,25,26] In addition, this loss of the normal cleansing and lubricating action of saliva is often associated with dysphagia,[27,28] altered taste sensations,[27,28] painful ulcerations,[27,28] acute parotitis,[25,28,29] difficulty with speech articulation[27] and candidiasis.[28,30] In an attempt to counteract the effects of a dry mouth, patients will often demonstrate a marked increase in their consumption of carbonated and alcoholic beverages, candy and soft (carbohydrate-rich) foods. This dietary regimen only serves to further intensify the high rate of smooth surface caries and periodontal disease. Water intoxication syndrome may also become a significant problem in these patients, triggered in part by their xerostomia.[31] Consequently, there is a far greater requirement for dental restorations and/or extractions among patients with schizophrenic disorders.[5,13,32,33] For those patients with dentures, prolonged xerostomia will often result in the dentures becoming progressively loose and poorly fitting.[30,32] Denture supporting mucosae are inflamed and at times hyperplastic. Inflammatory papillary hyperplasia and cracking or fissuring of the lips and corners of the mouth (perleché) are in many cases associated with overlying monilial infections, further compromising the successful wearing of dentures. Consequently, dentures are worn for shorter periods of time, and this often affects the patient's overall nutritional status and psychological well-being. Although a potent anticholinergic agent, initiation of Clozapine therapy is often associated with a marked sialorrhea.[17] This phenomenon usually subsides within two to three weeks following the onset of treatment.

Patients with schizophrenia may experience delusional thoughts focusing on the oral cavity. Suspicions may be aroused that restorations placed into their teeth may in fact contain "transmitters," further enhancing their feelings of thought broadcasting, etc.[5,34] Acts of orofacial and self-mutilation have also been described in the literature, consisting of multiple autoextractions,[35] glossectomy,[36] self-enucleation of the eye,[37] excoriation of gingival tissues with sharp fingernails,[33] and burning of the gingivae with caustic substances.[33]

Neuroleptic-induced movement disorders have been associated with an increased incidence of impaired gag reflex and swallowing mechanisms among schizophrenic patients.[38] The constant involuntary movements of tardive dyskinesia may result in the patient complaining of ill-fitting dentures, increased mucosal ulcerations secondary to the constant dislodgement of the dentures and a generalized fatigue of the masticatory musculature.[5,16] A summary of oral findings is presented in **Table III**.

Dental Management

A key aim in the psychologic rehabilitation of an individual with chronic schizophrenia is the enhancement of that person's sense of identity and self-worth. These patients often display a distinct deterioration in grooming and self-care skills, which only serves to further inhibit the development of positive social interactions and integration within the community at large.[39] By continually encouraging and motivating the patient to participate actively in his or her own welfare and, in particular, the maintenance of good oral health, the dentist will in fact be contributing significantly not only to good dental health but the overall mental stability of the individual.

Consultation with the patient's physician and/or psychiatrist may be required prior to initiating dental treatment to confirm or expand on:

a) verification of the medical history, current medical management and the psychotropic medications being prescribed;

b) the patient's psychological status, with emphasis on an ability to participate in a proposed treatment plan; and

c) clarify, if required, the patient's competence pertaining to the granting of consent for the proposed care and associated financial commitments.

Familiarity with the wide range of side effects of the various neuroleptic medications is of paramount importance in facilitating treatment for these patients. Anticholinergic side effects, extra-pyramidal changes, sedation and orthostatic (postural) hypotension are prominent among the adverse effects of these drugs. The latter finding is most relevant following lengthy dental ap-

Table III:
Summary of Oral Findings in Patients With Schizophrenia

Xerostomia	Impaired gag reflex
Dental Caries	Trauma secondary to acts of self-mutilation
Gingivitis	Abnormal tongue and jaw movements (tardive dyskinesia)
Periodontitis	Ill-fitting dentures
Dysphagia	Poor oral hygiene
Acute Parotitis	Hallucinations - somatic type (e.g. worms crawling in one's mouth)
Candidiasis	
Mucositis	Psychomotor disturbances (e.g., grimacing)
Inflammatory papillary hyperplasia	Delusional thinking (e.g., "transmitters" placed within dental restorations)
Perleché	

Find out why dentists have invested $170 million in the CDA RSP

- ✓ *NO commission*
- ✓ *NO closing fee*
- ✓ *NO front end load fee*
- ✓ *NO fee to switch between Funds*
- ✓ *NO hidden fees*

Here are just a few reasons... but there are many more!

The CDA RSP is one of the few RSPs available from a *non-profit organization*, so **you save on fees.** That means more of your money stays where it should be — in your Plan earning interest! You pay only a nominal administration charge to cover our expenses — **less than 1% per year**. Compare this to financial institutions that profit from your RSP by charging commissions, management fees and other fees you may not even know about *until it's too late!*

Shouldn't you get ALL the facts?

To make the right investment decision, it's important to have all the facts on hand. That's why we put together the RSP Fact Kit. It includes a fold-out factsheet highlighting the CDA RSP's performance and features, all in a quick-to-read format without a lot of technical jargon. And, you'll also receive a 10-page booklet, *"Everything you need to know about RSPs"*, a clear and informative guide with a special section to help you chart your finances down the road. *All yours just for asking!*

Our **strong performance record** shows you how the CDA RSP has been successful in helping thousands of dentists multiply their wealth and realize their retirement goals.

CDA RSP 1-10 YEAR PERFORMANCE RECORD
All fees deducted (period ending August 28, 1992)

Type of Fund	1 Year	3 Years	5 Years	10 Years
Bond & Mortgage Fund	18.9	13.3	12.6	13.0
Balanced Fund	10.5	6.9	7.4	12.7
Common Stock Funds	2.5	0.5	2.8	13.3
Money Market Fund	7.6	10.3	10.1	9.8

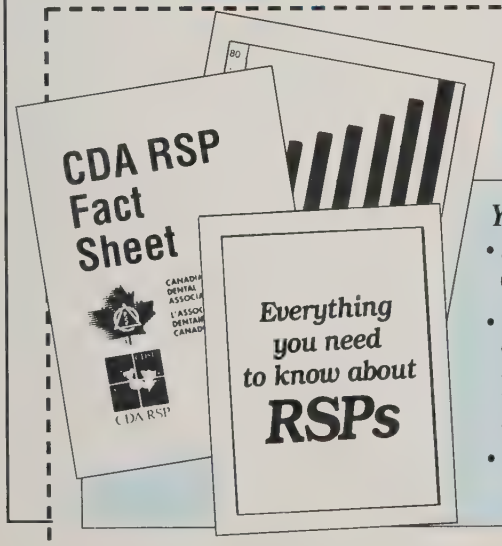
	1 Year	2 Years	3 Years	4 Years	5 Years
GIC Fund(rates in effect September 21, 1992)	4.85	5.35	6.10	6.60	7.10

*Call for your **FREE RSP Fact Kit,** including the bonus booklet **"Everything you need to know about RSPs".***

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

CDA RSP

The investment advantage available only to Canada's dental profession



*FIND OUT WHY THOUSANDS OF INVESTORS **JUST LIKE YOU** CHOOSE THE CDA RSP.*

Call today for your FREE RSP Fact Kit!

YOU'LL RECEIVE:

- a fold-out Factsheet on the CDA RSP, *plus*
- a new, 10-page booklet, **"Everything you need to know about RSPs"**, *including*
- a special section to chart your future finances

*Call **Toll-Free** across Canada*

1-800-561-9401

or in Metro Toronto

1-416-296-9401

(Please direct your enquiry to Extension 252, 253, or 254)

Fax: 1-416-296-8920

Generations Of Success

BEGIN WITH PROVEN PREMIER® PRODUCTS

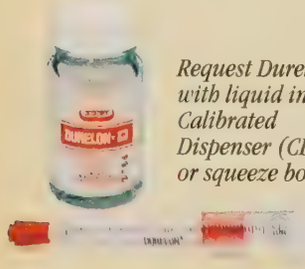
Millions of successful clinical applications and numerous research articles[1-11] prove you are selecting the very finest materials when you use ESPE DURELON® polycarboxylate cement, ESPE CAVIT® temporary filling material and HEMODENT® non-epinephrine hemostatic solution.

ESPE DURELON - since 1968 - the leading zinc polycarboxylate material for safe, trouble-free cementation of all your crowns and bridges. Durelon is *proven*[1-4] adhesive and pulp compatible.

Hemodent Liquid - in six packs of 10cc and 20cc bottles.

HEMODENT- since 1954- the original, buffered non-epinephrine hemostatic solution, continues to be the choice of dentists and most dental schools. It's *proven*[10-11] safe to successfully stop minor gingival bleeding - without fear of cardiac complications.

ESPE CAVIT - since 1948 - the preferred temporary material to effectively seal in medicaments while sealing out contamination between endodontic visits or in a "walking bleach" technique. It's easy to use on vital teeth too! There is no mixing as CAVIT sets on contact with saliva, for a *proven*[5-9] effective seal. Why take a chance on generic products? Initiate generations of success in your practice by selecting proven performers. Contact your authorized dealer now for money-saving economy packages.



Request Durelon with liquid in Calibrated Dispenser (CD) or squeeze bottle.

Available in three varieties:
Cavit - Original hard setting
Cavit W - (white) Medium setting
Cavit G - (grey) Soft setting

REFERENCES
1. "A New Dental Cement:, Smith, D.C., British Dental Journal, Vol.. 125, No. 9, pp. 381-384, November 5, 1968.
2. "Proportioning and Mixing Cement: A Comparison of Working Times", Eames, William B., Monroe, Scott D., Roan, John D., Jr., O'Neal, Sandra Jean, Operative Dentistry, 1977, 2, 97-104.
3. "Polycarboxylate cement as pulp capping agents", Beagrie, G.S., Main, J.H.P., Smith D.C., et. al., J. Can. Dental Assoc.., 40:378, 1974.
4. "Pulpal response to rhesus monkeys to cementation agents and cleaners", Eames, Wilber B., Hendrix, Kitsie, Mohler, H. Charles, JADA, Vol. 98, January 1979.
5. "The Effect of Temperature Change on the Sealing Properties of Temporary Filling Materials: Part 1", Parris, L., & Kapsimalis, P., O.S., O.M. & O.P., 1960, 8:982-989.
6. "The Effect of Temperature Change on the Sealing Properties of Temporary Filling Materials - Part II", Parris, L, Kapsimalis, P., & Cobe, H.H., O.S., O.M., & O.P., 1964, 6:771-778.
7. "Marginal leakage of temporary sealing materials used between endodontic appointments and assessed by calcium 45-an in vitro study", Marosky, John E., Patterson, Samuel S., Swartz, Marjorie, Journ.. of Endodontics, Vol.. 3, No. 3, March 1977, pgs. 110-113.
8. "Effect of temperature change on the sealing properties of Cavit and Cavit G", Oppenheimer, Steven, Rosenberg, Paul A., Oral Surgery, Dec. 1979.
9. "The Sealing Properties of Temporary Filling Material", Pashley, E.L., Tao, Li and Pashley, D.H., Journal of Prosth.. Dent., Sept 88, Vol.. 60, 292-297.
10. "An Evaluation of the Drugs Used For Gingival Retraction", Woycheshin, D.D.S., Felix F., Journal of Prosth.. Dent., Vol. 14, No. 4, Pages 769-776, July/August 1964.
11. "Mechanical-Chemical and Electrosurgical Tissue Retraction For Fixed Prosthesis", La Forgia, A.B., D.D.S., Anthony, Journal of Prosth.. Dent., Vol. 14, No. 6, Pgs. 1107-1114, Nov./Dec., 1964.

premier

Premier Dental (Canada) Inc., ESPE Premier (Canada) Inc..
480 Hood Road, Unit #3, Markham, Ont., Canada L3R 9Z3 (800) 465-8455

ESPE-premier CANADA

®ESPE, Durelon and Cavit are registered trademarks of ESPE, Germany, Premier and Hemodent are registered trademarks of Premier Dental Products Co.
©1992 Premier Dental Products Co.

pointments, at which time the patient would be prone to dizziness and even syncope if not allowed to get up slowly from the dental chair. Suppression of the hemopoietic system may also occur with the various antipsychotic medications, placing the individual at increased risk for infection and hemorrhage.[5,13] A complete blood count and coagulation profile should be reviewed for these patients prior to undertaking any extensive or invasive dental procedures (e.g., oral surgery), and prophylactic antibiotic coverage may be a prerequisite in these cases. For those individuals receiving Clozapine therapy, a white blood cell count and differential count are mandatory prior to the commencement of dental treatment to monitor for the presence of any drug-induced agranulocytosis.

Alcohol and street drug abuse are frequent complicating factors in the overall psychiatric management of schizophrenia.[5] The cumulative effects of alcoholism will alter normal liver function, rendering the individual more susceptible to the risk of hemorrhage, decreased resistance to infection, and delayed wound healing (i.e., post-extraction). Compromised liver function will also alter the metabolism of many of the drugs commonly-used in dental practice, such as the amide-type local anesthetics, acetaminophen, codeine, acetylsalicylic acid, etc. Liver function tests, prothrombin and partial-thromboplastin time determinations may be a prerequisite in these individuals.

Psychotropic drugs exhibit a wide range of interactions with other medications, including those prescribed by dental practitioners.[13,40] Central nervous system (CNS) depressants such as barbiturates, narcotic analgesics and general anesthetic agents may act synergistically with neuroleptic agents, enhancing significantly the sedative effect of the latter medications, as well as potentiating the previously-reported adverse effect of orthostatic hypotension. The risk of respiratory depression may be intensified when antipsychotic agents are used in combination with CNS depressants.[3,13] A further drug interaction has been described between psychotropic medications and epinephrine, when it is employed as a vasoconstrictor agent in local anesthetics. This interaction has been termed the "epinephrine reversal" phenomenon.[13] Antipsychotic drugs will block the alpha-adrenergic receptors in peripheral vascular smooth muscle (responsible for vasoconstriction), and thereby may prevent the usual effect of pharmacologic doses of epinephrine, instead, promoting a vasodilating effect (action on beta-adrenergic receptors is unchanged). Of note for dentists, the duration of local anesthesia could be decreased, with a concomitant increase in the risk of systemic toxicity.

The cornerstone of any treatment strategy involving a patient suffering from chronic schizophrenia is, as with any dental patient, preventive dental education. However, a considerable degree of modification is required for any preventive program to be able to adapt to the divergent needs of this particular patient population. Cooperation by the patient may vary drastically from one appointment to the next. While they may demonstrate an apparent understanding and willingness to brush and floss properly on one occasion, they may adamantly refuse to carry out oral hygiene practises at other times. Confrontation or the adoption of an authoritative attitude should be avoided by the dentist, particularly during these phases of non-compliance toward proper dental care. Appointments, therefore, are often scheduled at three- to six- month intervals depending on, for example, patient motivation and compliance, the physical ability (dexterity) to carry out preventive dental care and the degree of xerostomia that is present. For some individuals, six-week check-ups are mandatory. Adjunctive measures are employed to emphasize and support the need for proper oral health in addition to those verbal instructions given by the dental hygienist and/or dentist. Disclosing solutions, tooth-brushing demonstrations and dietary counselling will serve to reinforce the need to maintain the level of oral hygiene and care. Regular application of a 0.4 per cent stannous fluoride gel (either on a daily basis with custom trays or during regular recall appointments) will help promote remineralization of the tooth enamel and facilitate a reduction in dental caries. Chlorhexidine gluconate mouth rinse has also been shown to be effective in reducing the severity of gingivitis, although the possibility of secondary staining of teeth has been reported in the literature.[41,42] For those patients suffering from an extremely dry mouth (and for which no drug substitution is available), some relief may be obtained from several commercially-available saliva substitutes (e.g., Moi-Stir, VA Oralube, Salivart).[26,32] Salivary stimulants such as sugarless hard candy and sugar-free gum may provide some impetus to an increase in salivary flow. Avoidance of alcoholic, caffeinated and carbonated beverages will serve to reduce the intensity of the xerostomia. The dental treatment required by most of these patients will involve regular subgingival scaling and root planing, prophylaxis, restorative care and extractions with follow-up removable prosthetics. All procedures can often be carried out quite adequately under local anesthesia with judicious use of a vasoconstrictor agent. Careful, slow injection with frequent aspiration should be undertaken with every patient. Fixed prosthodontic care (including implants) requires a detailed individualized case study and analysis in this particular group of patients, paying particular attention to the degree of xerostomia, the level of oral hygiene and in many instances, the lack of financial resources.

Conclusion

In today's society, both psychiatric disease and dental disease are viewed as two of the most prevalent of all health problems.[5,7,25] Patients with schizophrenic illness represent only one of a myriad of population groups with psychiatric disorders who are now receiving treatment in community-based settings as an alternative approach to long-term institutionalization. Consequently, community dental practitioners may anticipate treating more of these patients in their offices and, therefore, must consider the special problems and concerns that are related to the particular illness involved. The management of these patients may in some instances require consultation between the dentist and the psychiatrist/physician, enabling the dentist to more fully understand not only the specific psychopathology of the disease, but also the treatment that these patients are receiving for their disorder. The experience of contributing further to the overall psychologic rehabilitation of an individual suffering from chronic schizophrenia through an enhancement of their sense of identity and self-esteem can be extremely rewarding and fulfilling for the dental practitioner.

Dr. D.B. Clark *is chief of dentistry at Whitby Psychiatric Hospital, P.O. Box 613, 700 Gordon Street, Whitby, Ontario L1N 5S9.*

Reprint requests to **Dr. Clark.**

References

1. Health and Welfare Canada. *Mental Health for Canadians: Striking a Balance*. Ottawa, 1988.
2. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. Ed. 3. Revised (DSM-III-R). American Psychiatric Association, 1987, pp. 187-198.
3. Friedlander, A.H. and Brill, N.Q. The dental management of patients with schizophrenia. *Spec Care Dent* 6:217-218, 1986.
4. Andreasen, N.C. and Olsen, S. Negative vs. positive schizophrenia: definition and validation. *Arch Gen Psychiat* 39:789-794, 1982.
5. Friedlander, A.H. and Liberman, R.P. Oral health care for the patients with schizophrenia. *Spec Care Dent* 11:179-183, 1991.
6. Stiefel, D.J., Truelove, E.L., Menard, T.W. et al. A comparison of the oral health of persons with and without chronic mental illness in community settings. *Spec Care Dent* 10:6-12, 1990.
7. Warman, E. Understanding the psychotic dental patient. *Ann Dent* 35:17-20, 1976.
8. Pardes, H., Kaufman, C.A., Pincus, H.A. et al. Genetics and psychiatry: past discoveries, current dilemmas, and future directions. *Am J Psychiat* 146:435-443, 1989.
9. McKenna, P.J. Pathology, phenomenology and the dopamine hypothesis of schizophrenia. *Br J Psychiat* 151:288-301, 1987.
10. Berman, K.F., Illowsky, B.P. and Weinberger, D.R. Physiological dysfunction of dorsolateral prefrontal cortex in schizophrenia, IV: Further evidence for regional and behavioral specificity. *Arch Gen Psychiat* 45:616-622, 1988.
11. Breier, A., Schreiber, J.L., Dyer, J. et al. National Institute of Mental Health longitudinal study of chronic schizophrenia. *Arch Gen Psychiat* 48:239-246, 1991.
12. Farde, L., Wiesel, F.A., Halldin, C. et al. Central D2 — dopamine receptor occupancy in schizophrenic patients treated with antipsychotic drugs. *Arch Gen Psychiat* 45:71-76, 1988.
13. Quock, R.M. Clinical complications in the psychiatric dental patient. *Compend Contin Educ Dent* 6:333-345, 1985.
14. Casey, D.E. and Keepers, G.A. Neuroleptic side effects: Acute extra pyramidal syndromes and tardive dyskinesia. In: *Psychopharmacology: Current Trends*. Berlin, Springer Pub., 1988, pp. 74-83.
15. Jeste, D.V. and Wyatt, R.J. Prevention and management of tardive dyskinesia. *J Clin Psychiat* 46:14-18, 1985.
16. Bassett, A., Remick, R.A. and Blasberg, B. Tardive dyskinesia: An unrecognized cause of orofacial pain. *Oral Surg* 61:570-572, 1986.
17. Bablenis, E., Weber, S.S. and Wagner, R.L. Clozapine: a novel antipsychotic agent. DICP Annals Pharmacother 23:109-115, 1989.
18. Kane, J.M., Honigfeld, G., Singer, J. et al. Clozapine for the treatment-resistant schizophrenic: results of a U.S. multi-center trial. *Psychopharmacology* 99:60-63, 1989.
19. Helmchen, H. Clinical experience with clozapine in Germany. *Psychopharmacology* 99:80-83, 1989.
20. Lapierre, Y.D., Ghadirian, A., St-Laurent, J. et al. Clozapine in acute schizophrenia — efficacy and toxicity. *Curr Ther Res* 27:391-400, 1980.
21. Naber, D., Leppig, M., Grohmann, R. et al. Efficacy and adverse effects of clozapine in the treatment of schizophrenia and tardive dyskinesia — a retrospective study of 387 patients. *Psychopharmacology* 99:73-76, 1989.
22. Kirkegaard, A., Hammershoj, E. and Ostergard, P. Evaluation of side effects due to clozapine in long-term treatment of psychosis. *Arzneim Forsch* 32:465-468, 1982.
23. Fitton, A. and Heel, R.C. Clozapine: a review of its pharmacological properties and therapeutic use in schizophrenia. *Drugs* 40:722-747, 1990.
24. Hede, B. and Petersen, P.E. Self-assessment of dental health among Danish non-institutionalized psychiatric patients. *Spec Care Dent* 12:33-36, 1992.
25. Jackson, E. Psychiatry and dentistry. In: *Comprehensive Textbook of Psychiatry*, Ed. 3. Baltimore, Williams and Wilkins, 1980, pp. 2069-2977.
26. Epstein, J.B. and Stevenson-Moore, P. A clinical comparative trial of saliva substitutes in radiation-induced salivary gland hypofunction. *Spec Care Dent* 12:21-23, 1992.
27. Fox, P.C., VanderVen, P.F., Sonies, B.C. et al. Xerostomia: evaluation of a symptom with increasing significance. *JADA* 110:519-525, 1985.
28. Butt, G.M. Drug-induced xerostomia. *J Canad Dent Assoc* 57:391-393, 1991.
29. Little, J.W. and Falace, D.A. *Dental management of the medically compromised patient*, Ed. 3. St. Louis, C.V. Mosby, 1988, pp. 415-420.
30. Pollack, B., Buck, I.F. and Kalnins, L. An oral syndrome complicating psychopharmacotherapy: Study II. *Am J Psychiat* 121:384-386, 1964.
31. Tamakloe B. Personal communication, Whitby Psychiatric Hospital.
32. Fann, W.E. and Shannon, I.L. A treatment for dry mouth in psychiatric patients. *Am J Psychiat* 135:251-252, 1978.
33. Mester, R. The psychodynamics of the dental pathology of chronic schizophrenic patients. *Isr J Psychiat Relat Sci* 19:255-261, 1982.
34. Horak, L. Personal communication, Whitby Psychiatric Hospital.
35. Altom, R.L. and DiAngelis, A.J. Multiple autoextractions: Oral self-mutilation reviewed. *Oral Surg* 67:271-274, 1989.
36. Tenzer, J.A. and Orozco, H. Traumatic glossectomy. *Oral Surg* 30:182-284, 1970.
37. MacLean, G. and Robertson, B.M. Self-enucleation and psychosis. *Arch Gen Psychiat* 33:242-249, 1976.
38. Craig, T.J., Richardson, A., Pass, R. et al. Impairment of the gag reflex in schizophrenic inpatients. *Compr Psychiat* 24:514-520, 1983.
39. Wong, S.E., Flanagan, S.G., Kuehnel, T.G. et al. Training chronic mental patients to independently practise personal grooming skills. *Hosp Commun Psychiat* 39:874-879, 1988.
40. Stambaugh, J.E. and Wainer, I.W. Drug interaction: Meperidine and chlorpromazine, a toxic combination. *J Clin Pharmacol* 21:140-146, 1981.
41. Barnes, G.P., Allen, E.H., Parker, W.A. et al. Dental treatment needs among hospitalized adult mental patients. *Spec Care Dent* 8:173-177, 1988.
42. Burtner, A.P., Low, D.W., McNeal, D.R. et al. Effects of chlorhexidine spray on plaque and gingival health in institutionalized persons with mental retardation. *Spec Care Dent* 11:97-100, 1991.

Are Endodontic Teeth More Brittle?

It has been widely held in dental literature that endodontic treatment weakens teeth by making them desiccated and inelastic. This has been assumed to make teeth more brittle. Careful research shows that few proper studies have actually been carried out to support these claims.

To investigate this, 23 matched pairs of teeth were used. They were chosen from patients who were, for prosthetic reasons, losing contralateral teeth, one of which was vital and the other had a known history of endodontic treatment performed more than one year previous. The pairs were tested for punch shear strength, punch shear toughness, vertical load to fracture, and micro-hardness.

Results showed no clinically significant difference in measurements between vital and endodontically-treated teeth. The authors suggest that since the biomechanical properties of endodontically-treated teeth and their contralateral vital pairs are so similar, other factors may be more critical to the failure of endodontically-treated teeth.

These factors may be the cumulative loss of tooth structure from caries, trauma, and restorative and endodontic treatment. Another possibility may be that the loss of proprioception in these teeth leads to placement of greater loads on them and thus greater possibility of fracture.

*Sedgley, C.M.J. **of Endo**. Vol. 18, No. 17, July 1992*
Special thanks to The Dentaletter, September/October 1992.

Comparison of dental caries and oral hygiene indices for 13- to 14-year-old Quebec children between 1977 and 1989-1990

Martin Payette, DDS
Jean-Marc Brodeur, DDS, PhD

ABSTRACT

A comparison of the principal dental health indices of 13- to 14-year-old Quebec school children between 1977 and 1989-1990 is reported. Data derive from a dental health survey of 1,093 Quebec school children in 1977 and from a province-wide probability sample of 1,342 children in 1989-1990. The most interesting conclusions are: the DMFT index for 13- to 14-year-old children dropped from 9.0 to 4.5; an improvement in the caries treatment level from 26 per cent to 90 per cent is noted; caries treatment needs decreased from 55 per cent to nine per cent; the mean number of extracted teeth per child dropped from a score of 1.6 to a score of 0.03; significant differences in the DMFT index between residential status no longer exist; and no improvement in the oral hygiene condition (OHIS index) is observed. In 1989-1990, 35 per cent of these adolescents had perfect periodontal health. For the others, the principal problems were bleeding gums and/or calculus.

SOMMAIRE

Cet article compare les principaux indicateurs de la santé dentaire des enfants de 13-14 ans entre 1977 et 1989-1990. Les données proviennent de l'enquête réalisée en 1977 chez 1 093 étudiants âgés de 13 et 14 ans et celles de l'Enquête Santé Dentaire Québec en 1989-1990 chez 1,342 étudiants du même âge. En voici les principaux points: la moyenne CAOD par enfant de 13 et 14 ans a diminué de 9,0 à 4,5; le niveau de traitement par obturation s'est amélioré, passant de 26 p. cent à 90 p. cent; le besoin de traitements de la carie a chuté de 55 à 9,0 p. cent; la moyenne de dents permanentes extraites est passée de 1,6 à 0,03: les différences significatives observées en 1977 en regard de la prévalence de la carie selon le statut de résidence sont disparues en 1989-1990; on observe aucune amélioration significative de la condition d'hygiène buccale lorsque mesurée par l'OHI(S). En 1989-1990, 35 p. cent de ces adolescents bénéficiaient d'une parfaite santé péridentaire. Pour les autres, les principaux problèmes étaient le saignement des gencives et/ou le tartre.

Introduction

The Quebec government introduced a community health system in the early '70s. One of the objectives was to implement a dental preventive program for Quebec children. At the same time, the province inaugurated a curative and individual preventive dental service program in the private sector.

In 1977, a dental health survey of Quebec school children between 6-7 and 13-14 years of age was undertaken using a representative sample and standardized indices for measuring dental caries and periodontal disease.[1] Twelve years later, during the 1989-1990 school year, the Quebec Community Health Department Directors' Association and the Ministry of Social Affairs undertook a dental health survey of Quebec children between 7-8, 11-12 and 13-14 years of age.[2]

A system of standard epidemiologic techniques was used to ensure that dental disease data from those two surveys could be legitimately compared. To further ensure data comparability, examiners were carefully calibrated to common diagnostic criteria and examination standards.

This paper presents selected findings from the 1989-1990 dental health survey and compares them to the results of surveys conducted in 1977 and 1989-1990 for 13- to 14-year-old Quebec school children.

Methods and Materials

The complete methodology of this 1989-1990 survey is described in the final report.[2] The sampling frame consisted of two levels of stratification, where the Province of Quebec was divided, at first, into three homogeneous regions of residences: metropolitan, urban and semi-urban/rural zones. Each region was then sub-stratified into three groups of "Centre local de services communautaires" (CLSC) according to its dental caries experience in 1983-1984, resulting in a total of nine groups. Following this stratification, one to four CLSC were randomly selected, taking into account the respective weight of each CLSC in its region. In each CLSC, a weighted random selection of one or two high-schools was made. In each high-school, 97 children were selected at random and examined.

Clinical examinations were carried out by 21 dentists from the dental public sector. Prior to the field examinations, a three-stage 10-day formation exercise took place. Examiners were calibrated to standard procedures during this exercise. To ensure that there was an appropriate number of children to evaluate the intra-examiner consistency, 10 per cent of the children were re-examined by each examiner.

The clinical assessment was accomplished using standardized procedures and equipment. The following clinical data for dental caries, periodontal diseases and oral hygiene status were recorded on a standard computerized

form: Oral Hygiene Index (simplified) (OHI(S));[3] Community Periodontal Index of Treatments Needs (CPITN);[4] total amount of permanent teeth; decayed, missing and filled teeth (DMFT) and surfaces (DMFS) indices.[5,6] A self-administered questionnaire was completed by parents to obtain the routine socio-demographic data, fluoride history and some other information on the 1,342 children in the study.

These data were analyzed at Saint-Luc Hospital Community Health Department, using primarily the Statistical Package for Social Sciences (SPSS). The principal statistical tests used were the student T and the variance analysis (one way or anova).

Results

At the end of the calibration period, the inter-examiner consistency on caries indices (DMFT) attained by all examiners fluctuated between a 0.71 and 0.98 intra-class coefficient.[7] The intra-examiner consistency on the DMFT has proven to be extremely adequate. This level of intra-accord fluctuated between 97.8 per cent and 99.1 per cent for individual examiners.

Table I describes the distribution of the 13- and 14-year-old children examined in 1989-1990 by region. The obtained sample was close to the expected sample size in each region, and this stratification reflected the respective contribution of those zones throughout Quebec. A sample group of 1,342 children was examined. The non bias esti-

TABLE I

Number of Children Examined, and Descriptive Characteristics of the 13- and 14-year-old Quebec Children Sample, Quebec Dental Health Survey 1989-1990

Number of children examined	1,342
Metropolitan	22.1%
Urban	48.9%
Semi-urban/rural	28.9%
Sex	
Female	53.6%
Male	46.4%

TABLE II

Sample Precision and 95 per cent Confidence Limits for DMFT 13- to 14-year-old Children, Quebec Dental Health Survey 1989-1990, Sample Imprecision

Age	DMFT	(SD)*	Value of DMFT	Per Cent of DMFT	95% Confidence Limits
13-14	4.50	(3.46)	± .18	±4%	4.32-4.68

* = Standard Deviation

TABLE III

Age-Specific caries Prevalence in Permanent Teeth, Quebec 1977, 1983-1984, and 1989-1990

Age	Mean DMFT		
	1977	1983-1984	1989-1990
13	8.5	5.6	4.1
14	9.4	6.3	5.0
13 and 14	9.0	6.0	4.5

mate of the variable was weighed using the standard formulas, applied to the stratified sample by degrees.

Table I also shows the sample's sex and cultural background characteristics. The distribution pattern is in line with the overall structure of the Quebec population for these characteristics.

Table II details the precision level of the sample and the 95 per cent confidence limit, which is acceptable (four per cent around the mean of the sample). The trend in dental caries prevalence for 13- and 14-year-olds between 1977, 1983-1984 and 1989-1990 is illustrated in **Table III**.

The DMFT and components for 13- and 14-year-olds in 1977 and 1989-1990 is presented in **Table IV**. Data indicate a 50 per cent decline at those ages, which is statistically significant. For example, at age 13 and 14, the DMFT was 9.0 in 1977 and 4.5 in 1989-1990 ($p \leq 0.0001$). Girls have a less pronounced caries decline than boys at all ages. This may be explained, in part, by the fact that girls have more surfaces at risk (erupted) than boys at those ages, and that they have probably received more restorations on non-cavitated surfaces.

Table IV illustrates the positive variation of the DMFT components in Quebec during this period. The dental caries decline in Quebec is accompanied by a spectacular improvement in the treatment level and an encouraging lowering of the dental mortality in the permanent dentition. In 1977, girls received more treatments than boys. This tendency still exists in 1989-1990, and although the level of improvement of the F (filled component) is proportionally equal in boys and girls, girls have maintained a statistically significant positive difference from boys.

The relationship between residential status and the DMFT index and its components is illustrated in **Table V**. The 1977 adjusted data confirm the hypothesis that the prevalence of dental caries in children living in rural areas is significantly higher than that of children living in metropolitan or urban areas. Also, it reaffirms the fact that the treatment needs and dental mortality are higher, and treatment levels inferior, in rural zones. The adjusted mean DMFT scores in 1989-1990 do not show a significant difference by residential status. Children in rural areas have a higher number of teeth in need of treatment, but those needs are considerably

WHICH OF THESE PROBLEMS APPLY TO YOUR PRACTICE?

CANADA'S DENTAL BUSINESS PARTNER

Since 1981

- ☐ Poor patient scheduling
- ☐ Ineffective time management
- ☐ Ineffective recall strategy
- ☐ Insufficient new patient flow
- ☐ Poor patient retention
- ☐ High stress for doctor and team
- ☐ Lack of current management information
- ☐ Frequent staff turnover
- ☐ Too much paperwork
- ☐ Crowded work areas
- ☐ Unsatisfactory cash flow
- ☐ Inadequate bottom line
- ☐ Lack of direction/goals
- ☐ Lost planned treatments
- ☐ Low case acceptance

Don't worry, because you're not alone.
If any of these sound familiar, Exan can help you.

Exan's success is built on commitment: A commitment to maintain the leading edge in state-of-the-art technology and a commitment to ensure complete client satisfaction. Exan offers a full range of systems tailored to fit your requirements precisely.

For a personal demonstration of Exan solutions and for information regarding your closest Exan Authorized Reseller, please contact your nearest Exan office. Alternatively, please indicate the items above which concern you, complete the contact information requested, and mail your reply to us.

Doctor's Name _____

Address _____

_____

Phone _____

WESTERN CANADA
4171 Dawson St.
Burnaby B.C. Canada V5C 6B7
Phone: (604) 293-1661
Fax: (604) 293-1021

EASTERN CANADA
101-100 Steelcase Rd. E.
Markham, Ont., Canada L3R 1E8
Phone: (416) 470-9191
Fax: (416) 470-9190

ONCE IN A WHILE AN IDEA COMES ALONG THAT'S SO POWERFUL, IT CHANGES THE WAY WE THINK

NEW NON-NARCOTIC

TORADOL

10 mg TABLETS & 30 mg IM INJECTIONS

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

Toradol is a powerful new idea in the treatment of pain: a non-narcotic analgesic with narcotic-strength efficacy.

By class, Toradol belongs to the non-steroidal anti-inflammatory drug (NSAID) family. However, unlike conventional NSAIDs, it is a potent analgesic agent with minimal anti-inflammatory and antipyretic activity. And, it's the first peripherally-acting analgesic to be available in both IM injection and tablet formulations.[1,2]

One Toradol 30 mg IM injection has been proven to be as effective as morphine 12 mg IM and meperidine 100 mg IM.[3-9] And clinical studies have shown that one Toradol 10 mg tablet is more effective than acetaminophen 600 mg + codeine 60 mg (i.e., two tablets of acetaminophen + codeine #3).[10-12]

But, because Toradol is non-narcotic,[1] it has a more favourable tolerability profile than morphine, meperidine and acetaminophen-codeine combinations with less nausea, vomiting, drowsiness[10,11,13] and constipation.[1] What's more, Toradol has no narcotic addiction or abuse potential.[14]

Since Toradol is not a controlled substance,[2] there's no need to worry about narcotic control or security procedures. As well, Toradol has no narcotic prescribing restrictions.

So, for the management of acute, mild to severe pain in your practice, think about Toradol IM and tablets. Narcotic efficacy without narcotic drawbacks.

PROVEN EFFECTIVE IN A WIDE RANGE OF POST-OPERATIVE AND OTHER ACUTE PAIN CONDITIONS

POST-OPERATIVE PAIN[3-8, 15]

LOW BACK PAIN & SCIATICA[16-18]

SPRAIN, STRAIN[12, 18-21] & FRACTURE PAIN[8]

GYNECOLOGICAL PAIN[3-8, 22,23]

POST-DENTAL EXTRACTION PAIN[10, 11]

NEW NON-NARCOTIC

TORADOL®

10mg TABLETS & 30mg IM INJECTIONS (KETOROLAC TROMETHAMINE)

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

Toll-free Toradol Information Hotline 1-800-561-5481

lower than in 1977. School children of rural areas no longer have more extracted teeth and fewer restored teeth than those living in urban areas.

Table VI, which highlights caries data by socioeconomic status (SES), shows that in 1977, in Quebec, a family's SES had a profound association with their child's dental caries scores. An accurate comparison between the 1977 and 1989-1990 caries scores by SES is not easily feasible, because the Blishen Scale (an occupational class scale) could not be used in 1989-1990. Instead, children were classified according to family income categories, and the level of education and occupation of their father and mother. In 1989-1990, there was no significant difference between the mean caries scores found for the different categories of family income, but a significant difference was found relative to the level of education attained by the father and mother (data by family income not included in **Table VI**).

The treatment level of dental caries is usually evaluated by the F/DMFT ratio, which represents the proportion of an individual's teeth with caries experience that have received treatment in the form of fillings. Conversely, treatment needs for dental caries are usually illustrated by the D/DMFT ratio, and the dental mortality level by the M/DMFT ratio.

Table VII details the development of the treatment level, the dental mortality level and the treatment needs of 13- to 14-year-old Quebec school children between 1977 and 1989-1990, using Hunt and al's procedure, which gives the proportion of the total DMF teeth filled, decayed or extracted in the sample. This improvement is spectacular in relation to the treatment level, which increased from 26 per cent to 90 per cent. The treatment need, on the other hand, experienced an inverse decline from a 55-per-cent score to a nine-per-cent score, while the permanent dental mortality rate decreased from 17 per cent to 0.6 per cent.

Table VIII presents the improvement in the level of treatment between 1977 and 1989-1990 according to residential status. In 1977, the difference between the adjusted means was statistically significant ($p \leq 0.01$) for rural and urban Quebecers. In 1989-1990, the difference between the rural and the two urbanized groups was no longer significant. This related to a greater improvement occurring in the treatment level of the rural group between 1977 and 1989-1990 than occurred in the other two residency zones (69 per cent versus 58 and 61 per cent).

Tables IX and X present the data relevant to the two components of the OHI(S) index found in the 1977 and 1989-1990 children population. Several interesting findings emerged. First, in both surveys, the percentage of debris-free children is very low (1.9 per cent in 1977 and 6.1 per cent in 1989-

TABLE IV

Dental Caries Experience in the Permanent Dentition for 13- and 14-year-old Quebec School Children in 1977 and 1989-1990, by Age and Sex

Age	Sex	Survey	N(a)[1]	Mean Number per Child						Difference between the 1977/89-90 DMFT's
				Teeth present	D	M	F	DMFT(b)	(SD)	
13	F+M	Quebec	1,093	25.4	5.0	1.6	2.4	9.0		
and	F	Stamm	586	25.6	5.0	1.6	2.8	9.3		***
14	M	1977	505	25.3	5.1	1.5	1.9*	8.6*		
13	F+M	Quebec	1,3421	25.7	0.40	0.03	4.06	4.50	(3.46)	-50.0%
and	F	ESDQ	717	25.9	0.43	0.05	4.38	4.87	(3.62)	-47.6%
14	M	1989-90	625	25.5	0.37	0.01	3.7*	4.08**	(3.21)	-52.5%

* = $p \leq 0.05$, significant difference between sexes.
** = $p \leq 0.001$, significant difference between sexes.
*** = All differences, between 1977 and 1989-90 are significant ($p \leq 0.001$) except the difference between the number of teeth present.
(a) = The numbers are pondered, and rounding errors exist.
(b) = Rounding errors
(SD) = Standard Deviation
(1) = N = Number examined

TABLE V

Dental Caries Experience by Residence Status for 13- and 14-year-old Quebec School Children, 1977 and 1989-90

Residence	Adjusted Means (a) (b)									
	1977					1989-1990				
	N (c)*	D	M	F	DMFT	N*	D	M	F	DMFT(e)
Metropolitan	371	4.3	1.2	2.6	8.1	361	0.36	0.07	3.87	4.31
Urban	352	5.0	1.4	2.8	9.2	701	0.38	0.00	4.18	4.57
Rural(d)	277	5.8	2.0	1.8	9.6	280	0.55	0.04	4.04	4.62
Total:	1,000(c)	5.0	1.5	2.4	8.9	1,34 2	0.41	0.07	4.05	4.50

*N = Number examined

1977

(a) DMFT and component scores adjusted for cultural influence, SES, examiner bias and dentist:population ratio.

(b) Difference among adjusted means significant for DMFT and its three components, $p < 0.01$

(c) Sample size reduced from 1,093 because of missing SES data.

1989-1990

(a) DMFT and component scores adjusted for sex, cultural influence, income, father level of education and occupation.

(b) Difference among adjusted means, significant for M ($p \leq 0.0001$) component only.

(d) In 1989-1990, the "rural" category included semi-urban and rural groups.

(e) Rounding errors

TABLE VI

Mean DMFT Scores by Socio-Economic Status for 13- and 14-Year-Old Quebec School Children, 1977 and 1989-1990

1977		1989-1990	
Blishen Scale	DMFT	Father Level of Schooling	DMFT
1	6.40	University	3.63
2	7.36	College	4.12
3	8.91	12-13 years	4.41
4	8.44	11 years	4.42
5	8.96	9-10 years	5.05
6	9.89	0-8 years	4.95
7	9.71	----	
Anova (Reg)	F = 20.4 p≤ 0.001	Anova (Reg)	F = 3.02 pâ 0.91

TABLE VII

Treatment Level and Treatment Need for 13- and 14-Year-Old Quebec Children, by Age, 1977 and 1989-1990

Age	D/DMFT%		M/DMFT%		F/DMFT%	
	1977	1989-1990	1977	1989-1990	1977	1989-1990
13 and 14	55%	9%	17%	0.6%	26%	90%
Improvement between 1977 and 1989-1990 for 13- and 14-year-olds.	-83%		-96%		+246%	

TABLE VIII

Treatment Level (F/DMFT) by Residence Status for 13- and 14-year-old Quebec School Children, 1977 and 1989-1990

Residence	Adjusted (a) (b)				Improvement Between 1977 and 1989-1990
	1977		1989-1990		
	N (c)	F/DMFT%	N	F/DMFT %	
Metropolitan	351	32.0%	361	89.7%	+57.7%
Urban	345	30.4%	701	91.4%	+61.0%
Rural (d)	272	18.7%	280	87.4%	+ 68.7%
Total:	968(c)	26.9%	1,342	90.0%	+63.1%

1977

(a) F/DMFT scores adjusted for cultural influence, SES, examiner and dentist:population ratio.

(b) Difference among adjusted percentage significant, p≤ 0.01.

(c) Sample size reduced from 1,093 because of subjects not scorable and missing SES data.

1989-1990

(a) F/DMFT scores adjusted for cultural influence, sex, mean family income, father's occupation and level of education.

(b) Difference among adjusted percentage non-significant.

(d) In 1990, the rural category included semi-urban and rural groups.

1990). Second, as expected, females had cleaner teeth than males in both surveys. Third, the percentage of children without dental calculus was relatively high and almost identical in both surveys (62 per cent and 61 per cent), and a significant quantity of calculus was found only in a very small group of children. Fourth, an identical percentage of children was distributed in the 1.50 to 3.0 debris categories (poor hygiene condition) in 1977 and in 1989-1990. Finally, the mean debris, calculus and OHI(S) scores are almost identical in both surveys. These results may suggest that there was no real improvement in the oral hygiene condition of Quebec children between 1977 and 1989-1990. However, this index is a subjective scale and depends on different factors, for example: the time of day of the examination, techniques of examination and different examiners.

Tables XI and XII present data describing the periodontal condition of these young adolescents in 1989-1990. The community periodontal index of treatment needs (CPITN) was not used in 1977. It is therefore impossible to speculate on the evolution of this condition in the subject population between 1977 and 1989-1990. Nevertheless, data included in **Tables XI and XII** illustrate the relative level of periodontal health of this population. Globally, 58.5 per cent of these adolescents suffered from bleeding gums, 22.4 per cent have calculus, and a minority, two per cent, experience periodontal pockets of four to six millimetres.

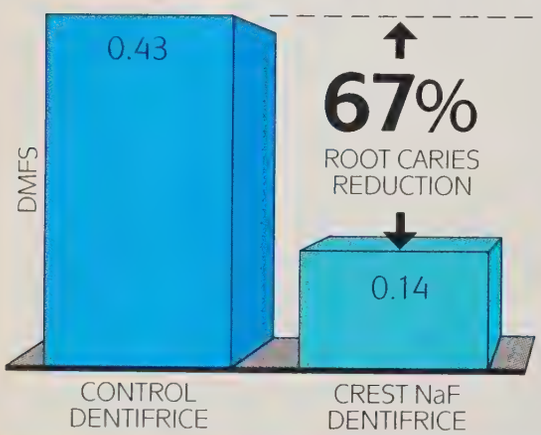
The distribution of subjects in relation to their most important periodontal problem showed that for almost 40 per cent of those adolescents, bleeding was the most important problem, while calculus was the most important problem for 21.1 per cent, and the presence of one or more periodontal pockets of four to six mm was the most important problem for only two per cent.

Discussion

The most noteworthy findings emerging from the 1977 dental health, Quebec school children survey were: the high overall caries activity; the dramatically high permanent tooth loss; the influence of living in a rural area on both caries rates and caries treatment levels; the cultural influence on oral hygiene, dental caries and treatment level and the impact of socio-economic status on those same variables.

The decline in dental caries preva-

CREST IS THE ONLY DENTIFRICE CLINICALLY PROVEN TO HELP PREVENT FRUSTRATING ROOT CARIES



We don't have to tell you about the difficulties and frustration in treating certain root caries, but we can give you some clinical information on prevention.*

Crest with sodium fluoride has now been shown to reduce the incidence of root caries by 67% in a controlled clinical study involving 810 adults over 54 years of age.[1] And, considering a National Institute of Dental Research oral health survey reported 25% of patients over age 40 have at least one carious or filled root surface lesion,[2] that's important to know.

So give your patients the clinically proven advantage against root caries that only Crest has been shown to offer. Recommend with confidence.

References: 1. *Jensen ME, Kahout F. The effect of a fluoridated dentifrice on root and coronal caries in an older adult population* JADA *1988, 117:829-832.* **2.** *1985 NIDR adult oral survey Oral Health of United States Adults (1985-1986)*

"Crest contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." CANADIAN DENTAL ASSOCIATION

Crest

Clinically recommended for root caries

PAAB CCPP

*On exposed root surfaces

lence in many industrialized countries in the last 10 to 20 years is a well-documented phenomenon.[8-12] Quebec does not seem to have diverged from this general trend.

Data analyzed in this paper confirm a 50 per cent dental caries prevalence decline between 1977 and 1989-1990 in Quebec for 13- and 14-year-old children. Today in North America, a mean DMFT of 4.5 is not considered unusually high. Dental caries prevalence rates in 13- to 14-year-old children in Quebec are still much higher than those in Ontario, British Columbia, Alberta and the U.S.[13-16]

The decline in dental caries in Quebec is associated, as it is in so many countries, with the emergence of limited groups of high-risk children where a large portion of caries experiences seems to be polarized as suggested by Marthaler.[17] At 13 and 14 years of age, 18.8 per cent of children having the higher DMFS account for 44.1 per cent of the overall caries experiences. The Quebec 1989-1990 survey was not designed to determine a causal relationship between an anticipated dental caries prevalence decline and the preventive dental measures introduced by the province in 1973-1974. In Quebec, in the absence of any rise of community water fluoridation between 1977 and 1989-1990 (population having access to water fluoridation remained around 10 per cent), the principal factors influencing the decline in dental caries might be speculated to be: greater use of topical fluorides (in particular, a massive use of fluoridated dentifrice); school-based, weekly fluoride mouth rinse programs; topical fluoride gel and varnish applications in private dental offices, or through the public sector; dental product publicity in the media; dental health education provided by more than 160 dental hygienists employed by the public sector; increased use of sugar substitutes; a more preventive-oriented approach by private sector dental practitioners; and, finally, a favorable change in public attitude concerning the importance of dental health. Some researchers also suggest the importance of the "halo effect" produced in non-fluoridated areas by the consumption by children of food and drinks prepared in fluoridated areas. Many of these factors are essential components of the dental program introduced in 1974, which was revised in 1982 and again in 1989-1990.

Compared to the international ICSDM surveys,[18] permanent tooth loss in Que-

TABLE IX

Distribution of Debris and Calculus Scores For 13- and 14-Year-Old Quebec School Children, 1977 and 1989-1990

Debris and Calculus	Per Cent			
	1977		1989-1990	
	Debris Scores n = 1,093	Calculus Scores n = 1,093	Debris Scores n = 1,342	Calculus Scores n = 1,342
0	1.9	62.7	6.1	61.8
0.01-0.49	11.6	26.3	10.2	21.4
0.50-0.99	28.1	8.3	28.3	10.6
1.0-1.49	29.3	1.4	27.0	3.1
1.5-1.99	16.0	0.2	13.8	1.1
2.0-2.49	8.3	0.2	13.6	1.1
2.5-3.00	3.4	0.0		
Not Classified	1.3	1.3	Excluded 0.9	0.9
Mean Score	1.10**NS	0.14**NS	1.09	0.13
Standard Error	0.01	0.007	0.01	0.007

** = Difference between means of 1977 and 1989-1990 not significant

TABLE X

Mean Oral Hygiene Index Simplified (OHIS) Scores for 13- and 14-Year-Old Quebec School Children, 1977 and 1989-1990

Variable	1977			1989-1990		
	Males	Females	Combined	Males	Females	Combined
Debris Mean Score	1.23	1.00**	1.10	1.18	1.02*	1.09
Calculus Mean Score	0.16	0.12	0.14	0.13	0.11	0.13
OHI(S) Mean Score	1.39	1.12*	1.28	1.31	1.13*	1.22

* = p≤0.05, difference between sexes significant
** = p≤0.01, difference between sexes significant

TABLE XI

Subjects Distribution In Regard With the Number of Sites With Periodontal Problems (Maximum 6 Sites), 13- to 14-Year-Old Quebec School Children in 1989-1990

Number of Site (Maximum Six Sites)	With Bleeding		With Calculus		With Periodontal Pockets, 4 to 6 mm.	
0	615	41.5%	1,151	77.6%	1,453	98.0%
1	158	10.6%	172	11.6%	24	1.6%
2	154	10.4%	77	5.2%	4	0.3%
3	147	9.9%	54	3.6%	2	0.1%
4	142	9.5%	13	0.9%	0	0.0%
5	125	8.4%	7	0.5%	0	0.0%
6	142	9.6%	9	0.6%	0	0.0%
Total	1,483	100%	1,483	100%	1,483	100%[1]

1 = Rounding Errors

the MISSION IS *the* MESSAGE

THE MISSION

The Canadian Dental Association is:

The authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada – dedicated to meeting member needs, and to the promotion and provision of optimal oral health for Canadians.

THE MESSAGE

CDA's mission delivers an important message to every dentist in Canada.

- **It defines** CDA's essential role in the world of Canadian dentistry.
- **It directs** CDA's every plan and action.
- **It declares**, to over 10,000 member dentists across Canada, that their national association is dedicated to serving their needs.

CDA. Serving Member Dentists across Canada.

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

1902-1992

Raison d'etre: *What* CDA's *new mission statement means to you*

CDA's new mission statement is more than simply the articulation of some lofty ideals. It is, in fact, the cornerstone on which to build a stronger, more dynamic and a more effective organization to represent and to serve dentistry in the 1990's.

TIMES *have* CHANGED

The need for a redefined mission is two-fold. First, times have changed. A big part of that change is economic. The booming Eighties are gone, taking with them a train load of unrealistic expectations. We can't have it all; we can't do it all. Not unless we have all the money in the world. And we don't.

The Nineties are proving sobering for all of us. We are all working harder just to hold our own in the face of a dizzying array of issues and challenges: governments looking for more tax dollars, public concerns about threats to their health from dental practices, changes to third party plans that threaten the quality of care in the interest of cost containment, media fanning the flames of public anxiety around anything they can find to make news... In today's environment, every dentist's practice depends in no small part on the authority and credibility with which CDA can be there for us and speak for the profession.

DENTISTRY *has* CHANGED

Second, dentistry itself has changed. Today's dentist is facing the new realities of establishing or maintaining a practice. Getting started is more difficult than ever for the recent graduate. A degree is no longer a ticket to an immediately rewarding career. The costs of establishing a new practice are prohibitive; associateships are in short supply. The knowledge explosion makes it difficult to keep pace with dental science and practice. Marketing has emerged as a skill every dental practice needs. What patients want and need puts increasing pressure on practitioners to keep pace. In short, as dentists we all need help, the kind of help CDA provides as the national resource.

Today. TOGETHER.

The range, nature and speed of change are further indications of the importance of the dental profession working together. Strength comes not simply in sheer numbers but in the ability to forge consensus, to formulate policies, standards and guidelines and to plan and execute programs that enable the individual dentist to maintain his or her professional independence. Issues such as infection control, mercury toxicity, or GST, don't recognize political boundries. We only have credibility, if we have a national voice. In short, national unity is as important to dentistry as it is to the country as a whole. The focus of such unity for the profession falls quite naturally to the CDA.

A SENSE OF MISSION

Authoritative voice. Resource. Focus of national unity. These are the essential roles to which CDA will direct its time, energy and resources in the years ahead in support of two fundamental principles: service to its members and advocacy for the optimal oral health of Canadians. All this adds up to a renewed, rededicated CDA, armed with new clarity of purpose and direction. It means that every member can expect CDA to provide continuing leadership and support in these challenging times.

Bernard Dolansky, BA, DDS, MSc
President of the Canadian Dental Association

TABLE XII

Subjects Distribution, Most Important Periodontal Problem and Periodontal Treatments Needs. CPITN Index

Most Important Periodontal Problem	13- to 14-Year-Old School Children In 1989-1990		Periodontal Treatment Needs
No Problem	519	35.0%	No treatment needs
Bleeding	584	39.4%	Dental hygiene instruction
Calculus	314	21.1%	Prophylaxy-scaling Dental hygiene instruction
Periodontal Pockets, 4 to 6 mm	30	2.0%	
Periodontal Pockets, 6 mm and more	1	0.1%	Complex treatment and dental hygiene instruction
Cannot be Examined	35	2.4%	Cannot be examined
Total	1,483	100%	

bec was appallingly high in 1977, with the average Quebec 13- to 14-year-old child having lost 1.6 teeth.

A dental health education program aimed at promoting conservation of natural dentition and a change in the dental fee guide to reduce the economic incentive of providing extractions, instead of restorations, were introduced between 1977 and 1989-1990. Not surprisingly, the appallingly high tooth loss rates – 1.6 teeth per child in 1977 – fell to a remarkably low 0.03 teeth per child in 1989-1990, a spectacular 98 per cent improvement in only 13 years.

Family socioeconomic status in 1977 had a profound association with the dental caries prevalence in Quebec children. This finding was not consistent with several other reports in the dental literature. Therefore, it was suggested that a family attitude existed in lower socioeconomic groups in Quebec, which put less value on dental health. In Stamm's view, a children's dental insurance program could not, by itself, be expected to alleviate such discrepancies. In 1983-1984, the data showed an apparent positive evolution, as all of the significant 1977 caries experience, by SES differences, seem to have dissolved. Unfortunately, a cruder SES index than the Blishen scale was used in 1983-1984, which produced an uncertainty about the real change in the preventive attitude of the lower socioeconomic groups.

In 1989-1990, by collecting many different socioeconomic variables, such as the level of education attained by the fathers and mothers of the 1,342 children included in the study, as well as their occupation and family income, it was possible to ascertain that family socioeconomic status is still associated with dental caries prevalence in children.

Quebec's dental insurance program for children has produced spectacular improvements in the treatment levels of dental caries in recent years – so much so that Quebec now enjoys a treatment level superior to that of U.S. children in the same age group.

The province's preventive and treatment program has also lifted the economic and geographic barriers to treatment for children living in rural areas. Rural residency status no longer affects the treatment level, as seen by the rate of improvement in the rural area between 1977 and 1989-1990, which was higher than the rate of improvement in the urban and metropolitan areas (69 per cent versus 58 and 61 per cent). In 1977, the children's oral hygiene status was slightly poorer than expected compared to North American children of the same age, with a debris index of 1.10 against scores of 0.81 for 13- and 14-year-olds in the United States (NCHS, 1975), of 0.68 for Ontario students in 1978, and 0.66 in a 1979 Alberta survey.

In 1989-1990, the calculus index continues to be relatively low in Quebec and the debris index does not show any significant improvement over the 1977 oral hygiene condition (1.09 versus 1.10). Taking into account the importance given to dental health education in the province's preventive program in recent years, this apparent lack of significant progress suggests that education programs which are universally applied to a global population may change the level of knowledge in this population, but do not change behavioral patterns. Targeting the dental health education programs to limited, well-defined groups of high-risk children could be a more productive approach. Oral hygiene status can explain the fact that, in 1989-1990, only 35 per cent of Quebec adolescents had perfect periodontal health. However, the principal problems were the presence of bleeding gums and calculus. A very small percentage of them (two per cent) had limited loss of periodontal attachment.

Conclusion

An impressive decline in caries prevalence and dental mortality, combined with a spectacular improvement in the treatment level of dental decay, was observed among Quebec children between 1977 and 1989-1990. This progress is certainly due, in large part, to government-financed preventive and treatment programs.

Further improvement of dental caries prevalence rates among Quebec children will depend on the introduction of programs involving community water fluoridation, school water fluoridation or the distribution of fluoride supplements in tablet form, as well as the use of specific interventions for high-risk children, particularly topical fluoride applications and sealants.

The 1989-1990 research was supported by grants from the National Health Research and Development Program (NHRDP) and the Fonds de la recherche en santé du Québec (FRSQ).

Dr. Martin Payette *is the head of the dental health program, Community Health Department, Saint-Luc Hospital, 1001 St-Denis St., Montreal, Que, H2X 3H9.*

Dr. Jean-Marc Brodeur *is the head of the Groupe de Recherche Interdisciplinaire en Santé (GRIS) at the University of Montreal.*

References

1. Stamm, J.W., Dixter, C.T. and Langlais, R.P. Principal Dental Health Indices for 13- to

14-year-old school children in Quebec. *J Canad Dent Assoc* 46:125-137, 1980.
2. Payette, M., Brodeur, J.M. and Lepage, Y. Enquête Santé Dentaire Québec, 1989-1990. Rapport final. Réseau des Départements de Santé Communautaire, Association des Hôpitaux du Québec, septembre 1991.
3. Greene, J.C. and Vermillion, J.R. The simplified Oral Hygiene Index. *JADA* 68:7-13, 1964.
4. Ainamo, J. Barmes, D. et al. Development of the World Health Organization (WHO) Community Periodontal Index of Treatments Needs (CPITN). *Int Dent J* 32:281, 1982.
5. O.M.S. Enquête sur la santé bucco-dentaire. Méthodes fondamentales, deuxième édition, 1977.
6. O.M.S. A guide to Oral Health Epidemiological Investigation, 1979.
7. Landis, R.J. and Koch, G.G. The measurements of observed agreement for categorical data. *Biometics* 33:159-74, 1977.
8. Brunette, J.A. and Carlos, J.P. Changes in the Prevalence of Dental Caries in U.S. School Children, 1961-1980. *J Dent Res* 61 (Spec. Iss.):1346-51, 1982.
9. Truin, G.J., Plasschaert, A.J.M., Konig, J.G. et al. Dental Caries in Five-, Seven-, Nine- and 11-year-old School Children During a Nine-Year Dental Health Campaign in the Hague. *Com Dent Oral Epidemiol* 9(2):55-60, 1981.
10. Anderson, R.J., Bradnock, J.F., Beal, J.F. et al. The reduction in Caries Prevalence in English School Children. *J Dent Res* 61 (Spec. Iss.):1311-1316, 1982.
11. Brown, R.H. Evidence of Decrease in the Prevalence of Dental Caries in New Zealand. *J Dent Res* 61 (Spec. Iss.):1327-1330, 1982.
12. Downer, M.C. Secular Changes in Caries Experience in Scotland. *J Dent Res* 61 (Spec. Iss.):1336-1339, 1982.
13. Ryan, R.K. Dental Health Indices 1985-86. Ontario Ministry of Health.
14. Gray, A. British Columbia: Children's Dental Health Survey of Grade 7 students of British Columbia, 1987.
15. Summary Report of the Second Dental Health Survey 1985. Health Association Units of Alberta.
16. Oral Health of United States Children; the National Survey of Dental Caries in U.S. School Children: 1986-1987, NIH Publ. No. 89-2247.
17. Chabot, D., Payette, M. and Brodeur, J.M. Risk Factors Associated with High Caries Scores Among Quebec School Children. *J Dent Res* 71 (Spec. Iss.):128, 1992 (March).
18. Cohen, L.K. Dental care delivery in seven nations: the International Collaborative Study of Dental Manpower Systems in relation to oral health status. *International Dental Care Delivery Systems*, Ingle, J. and Blair, P., editors. Belinger Publishing Company, Cambridge, 1978.

KNOW YOUR BLOOD PRESSURE *by Heart*

Brånemark System®

Authorized BRÅNEMARK SYSTEM® Dental Laboratories

Take Advantage of our Experience . . .

Aurum Ceramic Dental Laboratories Ltd.
Vancouver, British Columbia
1-800-663-1721

Aurum Ceramic Dental Laboratories Ltd.
Victoria, British Columbia
(604) 595-2314

Aurum Ceramic Dental Laboratories Ltd.
Calgary, Alberta
1-800-661-1169

Aurum Ceramic Dental Laboratories Alberta Ltd.
Edmonton, Alberta
(403) 423-1904

Aurum Ceramic Dental Laboratories (Sask) Ltd.
Saskatoon, Saskatchewan
(306) 665-8815

Bourque et Robert Inc.
Montreal, Quebec
1-800-561-6242

Canadian Associated Laboratories - St. John's
St. John's, Newfoundland
(709) 726-7686

Central Dental Laboratories (Barrie) Limited
Barrie, Ontario
1-800-461-7559

Classic Dental Laboratories Ltd.
Ottawa, Ontario
1-800-267-7040

De Luca Dental Laboratories
Willowdale, Ontario
1-800-268-6657

E. J. Pow Laboratories Inc.
Woodstock, Ontario
(519) 539-2065

Hub Dental Lab Ltd.
Moncton, New Brunswick
(506) 857-0465

Laboratoire Dentachrome Inc.
Quebec, Quebec
(418) 626-8888

Laboratoire Dentaire M.J. Inc.
Chicoutimi, Quebec
(418) 545-4155

Laboratoire Dentaire Morisset Inc.
Quebec, Quebec
(418) 529-9219

Laboratoire Dentec Inc.
Charlesbourg, Quebec
(418) 628-5039

Lafond & Marston Inc.
Outremont, Quebec
(514) 272-1158

Lafond, Desjardins et Associes Inc.
Laval, Quebec
(514) 669-9221

Le Groupe Dent-Esthérium
Ville St. Laurent, Quebec
(514) 744-4442

Lindberg & Homburger Dental Laboratories Ltd.
Toronto, Ontario
1-800-387-0092

Microdent Laboratories Ltd.
Woodbridge, Ontario
1-800-267-4292

Pro-Art Dental Laboratory Limited
Toronto, Ontario
1-800-268-6771

Pro-Dent Laboratory Ltd.
Halifax, Nova Scotia
(902) 422-8531

R. A. Baillie Oral Ceramiques Inc.
Ville St. Laurent, Quebec
(514) 748-7619

Rotsaert Dental Laboratory
Hamilton, Ontario
(416) 527-1422

Shaw Group
Toronto, Ontario
(416) 977-0700

Shaw Laboratories, Ltd.
Winnipeg, Manitoba
(204) 633-6102

. . . an invaluable part of your implant team

BRÅNEMARK SYSTEM® *is a registered trademark of Nobelpharma AB.*

Considérations spéciales relatives aux pièces de prothèses amovibles de classe 1 et 2 à la mandibule

Lynda Nicholson, DMD, M.Sc.

SOMMAIRE

La préservation de la santé des structures buccales restantes doit être l'objectif visé lors de la réhabilitation des personnes partiellement édentées. En ce sens, l'utilisation maximale des zones de support s'impose. En présence de pièces de prothèse amovible de classe 1 et 2 (classification Kennedy-Applegate), les dents restantes et les zones édentées assurent le support. Les dents n'offrent pratiquement aucun mouvement perceptible tandis que les tissus recouvrant les crêtes édentées se déplacent, et ce de façon variable. Il faut donc dessiner et construire une pièce qui protégera à la fois les dents restantes et les crêtes résiduelles. Le problème est d'autant plus aigu à la mandibule que la compressibilité des tissus des crêtes édentées est plus grande et le remodelage osseux plus important.

En ce sens, plusieurs approches et techniques ont été décrites dans la littérature dentaire: les empreintes fonctionnelles, l'utilisation de reteneurs directs appropriés et le regarnissage des pièces au besoin.

ABSTRACT

During the rehabilitation of partially edentulous patients, dentists must try to preserve the health of the remaining oral structures. That is why it is essential to make maximum use of the support areas. With removable class 1 and 2 prostheses (Kennedy-Applegate classification), the remaining teeth and the edentulous areas provide support. While virtually no movement from the teeth is noticeable, the tissues covering the edentulous ridges do move in a variable manner. A unit must therefore be designed and built to protect the remaining teeth as well as the residual ridges. The problem is all the more acute for the mandible, since the compressibility of the tissues of the edentulous ridges and remodeling of the bone are greater.

Many approaches and techniques have been described in the dental literature: functional impressions, use of appropriate direct retainers, and relining of units, if necessary.

Introduction

Le premier objectif en matière de réhabilitation des personnes partiellement édentées est d'assurer la préservation de la santé des structures buccales restantes. Ce principe est accepté d'emblée par les professionnels de la médecine et de la chirurgie dentaires. Une façon d'y arriver est l'utilisation maximale des zones de support qui sont constituées à la fois par les dents restantes et les crêtes édentées. L'importance qu'il convient d'accorder à l'une ou l'autre des zones est fonction de la classe d'édentation. Les diverses formes d'édentation ont fait l'objet d'une classification par Kennedy et Applegate et cette classification est d'une grande utilité pour l'ensemble des intervenants en médecine dentaire étant donné sa reconnaissance universelle.

Pour les pièces de prothèse amovible de classe 1 et 2, selon la classification de Kennedy-Applegate, on compte sur deux sources principales de support : les dents restantes et les zones édentées. Alors que les dents restantes n'offrent pratiquement aucun mouvement perceptible, les tissus recouvrant les crêtes édentées se déplacent, et ce de façon variable. Le problème à résoudre est donc posé par le besoin de dessiner et de construire une pièce qui protégera à la fois les dents restantes et les crêtes résiduelles. Tout changement des tissus associé à la résorption des crêtes résiduelles permettra le déplacement vertical des bases de la prothèse, ce qui développera subséquemment l'action de forces sur les dents restantes. Cet effet défavorable des selles libres sur les dents restantes est bien connu et plusieurs stratégies sont décrites pour réduire les risques courus par les dents piliers. Les dents piliers sont celles qui, parmi les dents restantes, assurent l'ancrage de la pièce de prothèse empêchant ainsi le déplacement des pièces lors de l'application de forces en tension et en compression. Parmi les plus importantes stratégies, on distingue:

A) la prise d'empreintes fonctionnelles des zones édentées,

B) l'utilisation de reteneurs directs transmettant moins de forces aux dents piliers,

C) les rappels et les examens de contrôle plus fréquents pour faire un regarnissage de la prothèse quand c'est requis.

C'est cette dernière stratégie qui est le plus souvent négligée. Alors que beaucoup d'efforts sont déployés pour enregistrer correctement l'empreinte des structures buccales et pour dessiner un appareil adéquat, on n'accorde pas assez d'attention à l'évaluation subséquente et périodique du besoin en regarnissage des prothèses mises en bouche.

2. Revue sommaire de l'état des connaissances

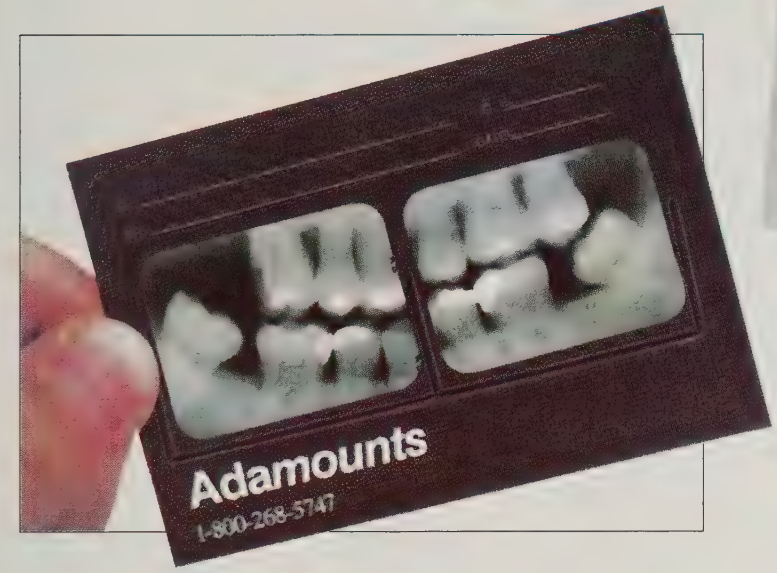
À la mandibule, une prothèse partielle amovible, dotée d'extensions distales et appartenant aux classes 1 et 2 de la classification de Kennedy-Applegate, requiert plus fréquemment un regarnissage qu'une pièce totalement supportée par les dents, parce que son support est fourni en grande partie par les crêtes résiduelles. Ce qui rend nécessaire le regarnissage est le besoin de rétablir sous la base de la prothèse, le support que les tissus des crêtes édentées doivent fournir à la prothèse. On recherche un contact intime entre les tissus gingivaux et l'intérieur des selles d'acrylique de la prothèse.

Parmi les facteurs qui influencent le

OUTSTANDING

Adamounts

Quality, Presentation and Convenience.



- Over 1500 styles
- Easy loading
- Custom imprinting

Order Now! The more you get the more we give.

With every package of Adamounts you order – get 20 Ada Pocket Mounts* FREE...

...plus we will donate $1.00 to the Children's Christmas Wish Fund.

* 602A, #2 film bitewings

Offer expires Dec. 18, 1992

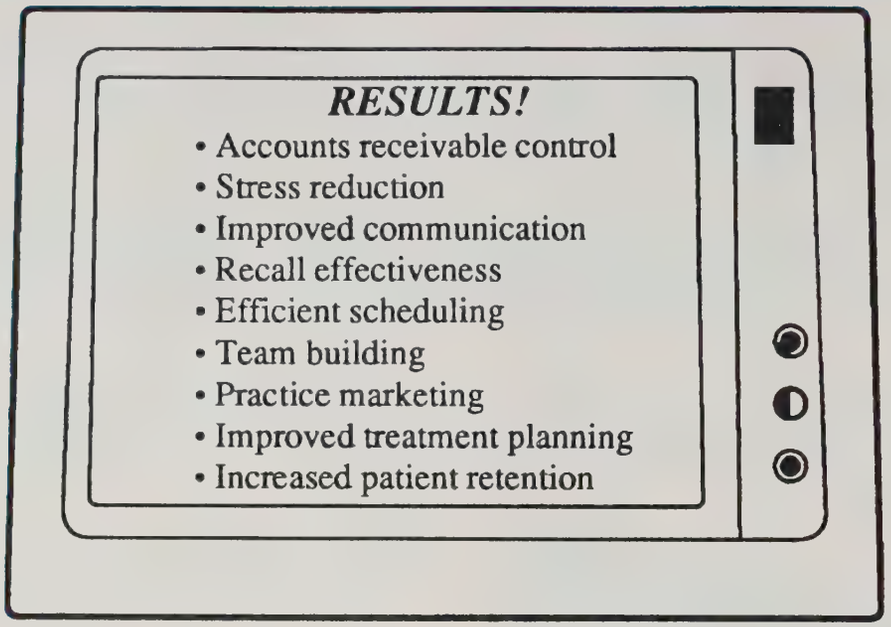
Call Toll-Free to order Now!

Ontario & Quebec **1-800-387-4588**

Remaining Canada **1-800-268-5747**

Dental Products Division
Block Drug Co. (Canada) Limited
Mississauga, Ontario L5N 6L6

See us at the Winter Clinic, booth 322



Get Results Now!

Do you want to get results? For more than 15 years, ABEL customers have achieved outstanding results by following the recommendations of our practice management advisors. *So can you!* **For the first 200 practices that respond to this offer, we are offering a *complimentary Practice Analysis Study.***

- We will analyze your needs and potential
- We will provide a report focused on improving your results
- There is no cost to you
- There is no obligation

You'll also learn about the **ABEL Dental Software System,** which can be an important component in achieving your results. Ideal for all sizes of practices, from small to very large, it is rated number one by an independent survey. It provides EDI, easy scheduling, contact management, interactive word processing, insurance claims processing and much, much more. In addition, with ABEL you get unparalleled support and service, 24 hours a day, 7 days a week. We're solid and stable, with more than 50 staff members to support you.

These are among the reasons so many practices start with ABEL, and why others convert to our system. **Before you automate your practice, call ABEL to schedule your complimentary Practice Analysis Study and to learn more about the ABEL Dental Software System.**

Get Results Now! Call toll-free.

1-800-263-5104

ABEL®

Much more than just a computer system.

ABEL Computers Ltd., 3310 South Service Rd., Burlington, Ont. L7N 3M6

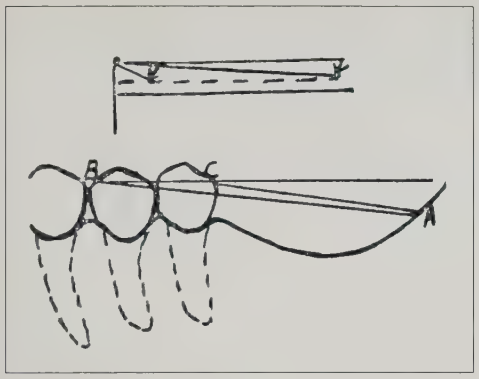


Fig. 1: Lorsque le point de rotation est déplacé de C à B, on agrandit la surface de la crête qui supportera la base. La ligne AC représente la longueur de la base de la pièce.

En partant du principe qui veut que le mouvement de rotation d'une extension distale se fasse à partir du point d'appui le plus près, si on déplace l'appui antérieurement, une plus grande surface de crête sera mise à contribution pour s'opposer à la rotation.

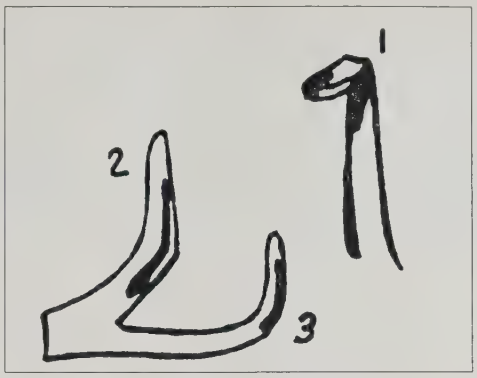


Fig. 2: Schéma du système R.P.I.[25]

1. Appui mésial (Rest)
2. Plaque proximale (P)
3. Crochet barre en «I»

support de l'extension distale ou de la selle libre d'une prothèse partielle amovible,[1] l'extension distale ou la selle libre étant un espace édenté sans pilier postérieur assurant le support, il convient d'examiner le rôle particulier des éléments suivants:

2.1) la qualité de la crête résiduelle;

2.2) l'extension de la couverture de la crête par la base de la prothèse;

2.3) le type d'empreinte utilisé;

2.4) l'adaptation de la base de la prothèse;

2.5) le dessin du squelette métallique de la prothèse;

2.6) les forces occlusales qui sont présentes dans le contexte clinique précis;

2.7) les stratégies et les méthodes de protection utilisées pour réduire les risques sur les dents piliers.

2.1 La qualité de la crête résiduelle

Par suite de la perte de dents naturelles, les alvéoles déshabillées deviennent le site d'une réorganisation tissulaire caractérisée par un amincissement des tables osseuses alvéolaires et le comblement de l'alvéole par de l'os lamellaire.[2] Ces processus forment ainsi les crêtes résiduelles qui constituent l'une des structures anatomiques supportant la prothèse partielle amovible. C'est ce que l'on désigne du terme de support ostéo-muqueux.

Une crête résiduelle parfaite aurait les caractéristiques suivantes: composée d'os cortical recouvrant un os lamellaire suffisamment dense, elle aurait un large sommet arrondi aux versants verticaux prononcés et serait tapissée de tissu conjonctif dense, ferme et fibreux. Une telle crête pourrait alors supporter facilement l'effet de forces mécaniques qu'elles soient horizontales ou verticales. On ne trouve malheureusement pas souvent cette sorte de crête.

Au-delà de la nature de l'os de la crête résiduelle, sa position relative par rapport aux forces et au sens de leur poussée est importante. La crête résiduelle de la mandibule est composée d'os lamellaire. La pression exercée sur cette crête cause souvent l'inflammation des tissus qui peut dégénérer en inflammation chronique. C'est pourquoi la crête résiduelle ne doit pas servir de premier endroit de support pour la prothèse et la tablette buccale convient davantage à cette fonction. La tablette buccale est bornée par la ligne oblique externe et le sommet de la crête. Elle est couverte par du tissu conjonctif dense, ferme et fibreux que supporte l'os cortical.

2.2 L'extension de la couverture de la crête par la base de la prothèse

Plus est grande la couverture de la crête par la base de la prothèse, meilleure est la répartition des charges mécaniques qui se développent pendant la mastication. Il en résulte alors une charge moindre par unité de surface. Les prosthodontistes conviennent que la base doive couvrir les crêtes résiduelles et s'étendre sur les tissus environnants selon la tolérance physiologique des structures et des tissus limitrophes. C'est avec le moulage périphérique qu'on développe le mieux la couverture des crêtes par la base de la prothèse.[3]

2.3 Le type d'empreinte utilisé

Un principe largement répandu en confection de prothèse partielle amovible stipule qu'on doive faire en sorte que la prothèse soit dessinée et construite de manière à protéger les structures orales restantes et restaurer la fonction.[4,5] L'utilité de l'empreinte physiologique des crêtes fut établie et démontrée par McLean.[6] Hindels,[7] Applegate[4] et plus récemment Leupold[8] ont mis au point des techniques d'empreinte des zones édentées qui permettent d'enregistrer les tissus selon leur aspect fonctionnel, et de minimiser sinon de ralentir les changements qui surviennent une fois que la prothèse est mise en bouche.

Steffel[9] a identifié trois stratégies qu'on peut adopter avec les selles libres:

A. Selon la première, on vise à équilibrer le support entre les dents et les crêtes par l'utilisation d'attaches résilientes ("stress breakers").

B. Selon la seconde, on recherche cet équilibre avec une empreinte à pression sélective et/ou le regarnissage en présence des tensions fonctionnelles.

C. Selon la troisième, on tente de répartir les zones de tension de façon à réduire la charge des forces mécaniques à un point donné.

2.4 L'adaptation de la base de la prothèse

La qualité du support d'une extension distale ou d'une selle libre est déterminée par l'étroitesse du contact entre la partie intrados de la base de la prothèse et les tissus de la crête. L'intrados de la base doit donc représenter une image fidèle des tissus de support.

De plus la base de la pièce doit être reliée au squelette métallique conformément à la relation existant entre les tissus de support qui recouvrent la crête et les dents piliers telle que cette relation a pu être définie lors de l'enregistrement fonctionnel par la prise d'empreintes.

2.5 Le dessin du squelette métallique

L'application des forces mécaniques en bouche entraîne un mouvement de rotation des selles libres à partir du reteneur direct placé le plus postérieurement. Ce mouvement qui est inévitable, prend une ampleur plus grande à la partie distale de la selle libre. A la mandibule, c'est dans la région du coussin rétromolaire que le mouvement atteint sa plus grande amplitude. Si l'on déplace vers l'avant l'axe de rotation ou la ligne du fulcrum, une plus grande partie de la surface des crêtes édentées

supportera les bases de la prothèse de sorte que les tensions seront distribuées sur une aire plus grande. Steffel[10,11,12] et Kratochvil[13,14] ont illustré ce phénomène à l'aide de la littérature dentaire tandis que Krol[15,16] a développé le système RPI pour aider à mieux répondre aux besoins spécifiques de la conception et de la confection des prothèses partielles amovibles dotées d'extensions distales.

2.6 Les forces occlusales en présence dans un contexte clinique précis

La charge totale qui est appliquée aux crêtes résiduelles est influencée par le nombre de dents remplacées, la largeur de leurs faces occlusales de même que par leur efficacité occlusale. Dans une étude réalisée en laboratoire, Kaires[17] a montré «que la réduction de la largeur de la table occlusale réduit le nombre des forces horizontales et verticales agissant sur les bases diminuant ainsi les stress sur les tissus de support et les dents piliers."

La différence fondamentale qui distingue les pièces de prothèse amovible supportées par les dents de celles avec extensions distales réside dans leur support. Quand les pièces sont supportées par les dents, les forces occlusales sont transmises à l'os par l'entremise du ligament péridentaire. Parce que les espaces édentés sont tous bornés par des dents naturelles, les appareils de cette classe fonctionnent comme des prothèses fixes.

Pour la pièce de prothèse amovible dotée d'extension distale, son support provient à la fois des dents et des tissus mous recouvrant les crêtes résiduelles. Les dents n'offrent pratiquement aucun mouvement perceptible, alors que les tissus recouvrant les crêtes édentées se déplacent, et ce de façon variable. Le problème à résoudre requiert donc de dessiner et de construire une pièce qui protégera à la fois les dents restantes et les crêtes résiduelles. Toute compaction des tissus qui pourrait résulter de la résorption des crêtes résiduelles entraînera le déplacement vertical des bases de la prothèse et suscitera subséquemment l'apparition de forces mécaniques qui agissent sur les dents piliers.

On a déjà dit que cet effet défavorable des selles libres sur les dents piliers est bien connu. Il est temps de revoir les approches et les méthodes qui sont utilisées pour réduire les forces qui s'exercent sur les dents piliers.

2.7 Les stratégies et les méthodes de protection pour réduire les forces sur les dents piliers

Les stratégies et les méthodes de protection développées pour réduire la tension sur les dents piliers c'est-à-dire amenuiser l'effet des forces qu'elles soient excessives ou non et qui sont dirigées selon l'axe long des dents, se regroupent en trois rubriques:

1. La prise d'empreintes fonctionnelles des zones édentées.

2. L'utilisation de reteneurs conçus pour transmettre moins de forces aux dents piliers:
   - construction des reteneurs selon le système RPI; (R = rest, P = proximal plate, I = i bar)
   - construction des reteneurs selon le système RPA; (R = rest, P = proximal plate, A = aker)
   - en présence d'un appui distal et lorsque ce dernier est indiqué, on opte pour:
     - ✦ un reteneur vertical en L quand la rétention est distale;
     - ✦ un reteneur circonférentiel façonné quand la rétention est mésiale.

3. Les examens de contrôle répétés plus fréquemment pour faire le regarnissage de la prothèse quand c'est requis.

2.7.1 La prise d'empreintes fonctionnelles des zones édentées ("secondary impression or altered cast impression")

Le premier but qu'on recherche dans la restauration d'une bouche partiellement édentée est la préservation des structures buccales restantes. On peut atteindre cet objectif en utilisant au maximum les structures résiduelles pour appuyer la pièce de prothèse. La recherche d'un support optimal pour la pièce de prothèse et pour son intégration dans l'environnement buccal est le meilleur moyen d'atteindre ce but.

Dans ce contexte, la construction de la pièce de prothèse amovible avec extension distale pose un problème technique. Pour cette catégorie de pièces on doit en effet obtenir deux zones de support dont la nature diffère. Le support provenant des dents restantes et de leurs membranes parodontales et celui provenant des bases ostéo-muqueuses. Parce qu'il existe une nette différence de compressibilité entre les muqueuses et les ligaments parodontaux, les forces occlusales entraînent un mouvement plus marqué de la pièce aux endroits qui sont supportés par les bases ostéo-muqueuses. Ce mouvement des pièces est inévitable et peut entraîner des conséquences iatrogéniques comme, par exemple, le traumatisme occlusal.

L'identification de ce problème par Cummer[18,19,20] a suscité une réflexion qui a débouché sur deux conclusions.[21,22] Premièrement, il est essentiel de reconnaître qu'il y a une différence de compressibilité au niveau des muqueuses et nécessaire d'en tenir compte quand on fait le dessin biomécanique de la pièce et qu'on évalue son maintien clinique. Ensuite, il faut prendre des précautions particulières quand on enregistre les zones ostéo-muqueuses de support de façon à réduire l'influence des différences de compressibilité entre les crêtes et les dents. La prise d'empreintes fonctionnelles des zones édentées, (Altered cast technique with a secondary impression) est une méthode qui permet de tenir compte de ces contraintes.

Description de la technique

Après avoir essayé en bouche le squelette métallique et procédé à tous les ajustements requis, un porte-empreinte sectionnel est attaché au niveau du treillis qui recouvrira les selles libres. On essaie le squelette et le porte-empreinte en bouche et on procède à la détermination périphérique du porte-empreinte individuel: c'est le moulage périphérique. Par la suite, on procède au chargement du porte-empreinte et on retourne en bouche pour l'enregistrement. L'élément critique de cet enregistrement consiste à vérifier que le squelette de la prothèse est bien assis sur la zone ostéo-muqueuse et en relation correcte avec les appuis sur les dents. Les critères de succès pour une telle procédure sont les suivants:

1. L'enregistrement des tissus sous leur forme fonctionnelle;

2. L'extension adéquate des bases;

3. La vérification de la stabilité de l'empreinte et de l'assise du squelette métallique au fond des appuis.

Lorsque le résultat est satisfaisant, il faut alors sectionner le modèle utilisé pour la coulée du squelette afin d'y remplacer les zones édentées par le nouvel enregistrement. C'est ce modèle qui sera utilisé pour la cuisson de la pièce de prothèse.

2.7.2 L'utilisation de reteneurs directs transmettant moins de forces aux dents piliers

2.7.2.1 Le système R.P.I.

C'est le crochet de premier choix pour les prothèses partielles amovibles à selles libres. La conception de ce crochet

Naturally, there's something in it for your patients.

When people started brushing with baking soda over 100 years ago, it was for its cleaning and deodorizing qualities.

Now Colgate has developed a new formula that combines these natural benefits with proven fluoride protection.

Colgate* Toothpaste With Baking Soda.

With its gentle abrasion, our new formula has proven effective against supragingival plaque. And because of its alkalinity, it also helps neutralize plaque acid.†

Recent comparison studies have shown that baking soda alone is at least as gentle on enamel and exposed dentin as other abrasives in the major toothpastes studied.†

What's more, Colgate ground the baking soda in its new toothpaste to pharmaceutical grade—considerably finer than the version used in the comparison test.

All this to ensure that our new toothpaste is a safe and effective way to clean and protect your patients' teeth. We've even given it a natural mint flavour, so there's no uncertainty about taste.

New Colgate Toothpaste With Baking Soda. Your patients will be glad to know there's something in it for them.

*TM Reg'd COLGATE-PALMOLIVE CANADA INC.

†References available on request.

The Dawn of a New Era in Patient Education

Did You Miss It?

Patient Education For The Nineties

October 1991 marked the dawn of a new era in patient education. The signal event? The launch of CDA's Dental Information System.

Every dentist in Canada received a brochure that introduced the system: what it is, how it works, and how it can work for you.

Hundreds have already contacted CDA for more information or to place their initial order. Here's your opportunity.

The Dental Information System is patient education for the Nineties. It's what dentists told us they needed. What patients told us they wanted. It is dental information redefined: the way it looks, the way it's organized, the way it's read, the way it works.

And it's available now.

Call CDA Toll-Free Today

You can order individual booklets, the whole series, or the custom designed display rack. CDA members save 25% on everything.

WHAT HOW WHEN WHY
THE DENTAL INFORMATION SYSTEM

The Dental Information System: clear, comprehensive, useful and friendly

•8 booklets, 12 pages each (5" X 8") •rigorously reviewed by dental experts •wide range of topics
•easy access indexing system •boxes, charts and photography that make information lively
•custom designed plexiglass rack (24" X 24" square)

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

Call: 1-800-267-6354 (Western Canada, Newfoundland, and Labrador)
1-800-267-6364 (Eastern Canada)

Colgate™

The Dental Information System has been made possible through the generous assistance of Colgate Palmolive.

a été diffusée aux États Unis sous le nom de système RPI.[23]

Selon la description de Krol[24] ce système est constitué:

- d'un taquet ou appui mésial avec sa connexion linguale («Rest») (R).
- d'une plaque proximale («proximal plate») (P) assurant la réciprocité.
- d'un crochet barre en I anciennement décrit par Roach. Il est constitué d'une simple barre peu flexible. La surface de contact avec le crochet est très réduite et se situe toujours sous la ligne guide, dans une zone de retrait généralement mésiale assurant ainsi la rétention.

Le but principal du crochet de cette conception est de limiter l'effet des forces nocives exercées sur les dents piliers dans les édentements en extension.[26]

Le taquet mésial assure l'appui, il est relié à une connexion se localisant dans l'embrasure sans aucun contact avec la dent adjacente. Sa localisation opposée à celle de la plaque distale provoque une force réciproque qui rend inutile l'addition d'une barre coronaire.

La plaque proximale sert de soutien et prend place dans une partie aménagée au tiers occlusal de la dent. Son extension se limite à l'angle distolingual. Elle est jointe à l'armature selon un angle droit, ce qui protège la papille inter-dentaire. L'intrados doit être méticuleusement poli afin d'éviter tout traumatisme à la muqueuse buccale.

Le crochet en I est en contact avec la dent sur deux (2.0) mm environ. Sa situation vestibulaire sur l'axe médian est placée mésialement, jamais distalement ce qui favorise la stabilité de la pièce. De plus, ce crochet limite l'effet des tensions sur la dent support. Il est plus esthétique car il aborde la zone de retrait selon une voie cervicale qui est peu apparente; la ligne guide est aussi éloignée que possible de la face occlusale de la dent support. Les crochets barres sont indiqués dans les classes I et 2 vu leurs nombreux avantages; entre autres l'équilibre biomécanique, c'est-à-dire leur parfaite intégration dans la conception globale de la prothèse sans qu'il y ait transmission de forces nocives aux dents piliers. Il est à noter que l'utilisation de ces crochets requiert la présence d'une surface d'au moins trois millimètres de gencive attachée, ainsi que l'absence de zone de contre-dépouille vestibulaire en regard de la gencive marginale et ce afin de permettre le passage de la barre de connexion lors de l'insertion de la prothèse.

Le système RPI est contre-indiqué dans le cas:

- d'une profondeur vestibulaire insuffisante,
- d'une zone rétentive ostéo-muqueuse trop accentuée au niveau du vestibule,
- d'une dent pilier trop inclinée buccalement ou lingualement,
- d'une dent n'ayant pas de rétention sur sa surface buccale,
- d'une profondeur du plancher lingual insuffisante,
- d'une couronne clinique courte.

2.7.2.2 Le système RPA

Il est destiné à accommoder les cas pour qui on ne peut utiliser le crochet du système RPI.[27] Ce crochet est composé d'un appui mésial (Rest) et d'une plaque proximale distale (P). Un crochet Aker (A) qui est fixé au niveau de la plaque proximale agit comme bras de rétention. Il suit la ligne de contour puis s'engage dans la zone de rétention.

En fait le système RPA est une modification du système RPI; la différence réside au niveau du bras rétentif. Son utilisation s'impose chaque fois que la profondeur du vestibule est insuffisante pour le bras vertical du système RPI ou que la rétention est au mésial[14] ainsi que dans le cas où il y a une zone rétentive au niveau des tissus de support.

2.7.3 Les examens de contrôle plus fréquents pour faire le regarnissage de la prothèse quand c'est requis

Le regarnissage consiste à combler l'espace entre l'intrados d'une pièce de prothèse et les tissus sous-jacents à l'aide d'un matériau, ceci afin d'adapter l'intrados de la pièce aux tissus sous-jacents.[28] Le besoin de regarnissage est assez fréquent en prothèse partielle amovible avec des extensions distales à cause des changements du support ostéo-muqueux et de l'immobilité relative des dents piliers.[29]

Les prothèses amovibles à extension distale requièrent plus fréquemment un regarnissage car elles sont supportées en majeure partie par les crêtes résiduelles susceptibles de changer, et ce, plus ou moins rapidement selon la qualité des tissus sous-jacents, le type d'occlusion et l'état parodontal des dents piliers. La nécessité de procéder au regarnissage d'une prothèse partielle amovible à extension distale est déterminée par la stabilité de la pièce et par la qualité de l'occlusion qu'on évalue à intervalles réguliers. Le patient doit être avisé de l'importance de ces examens de rappel tant pour la longévité de la pièce que pour le maintien optimal de la santé de sa cavité buccale. Il doit être également informé des regarnissages qui seront requis dans un futur plus ou moins rapproché.

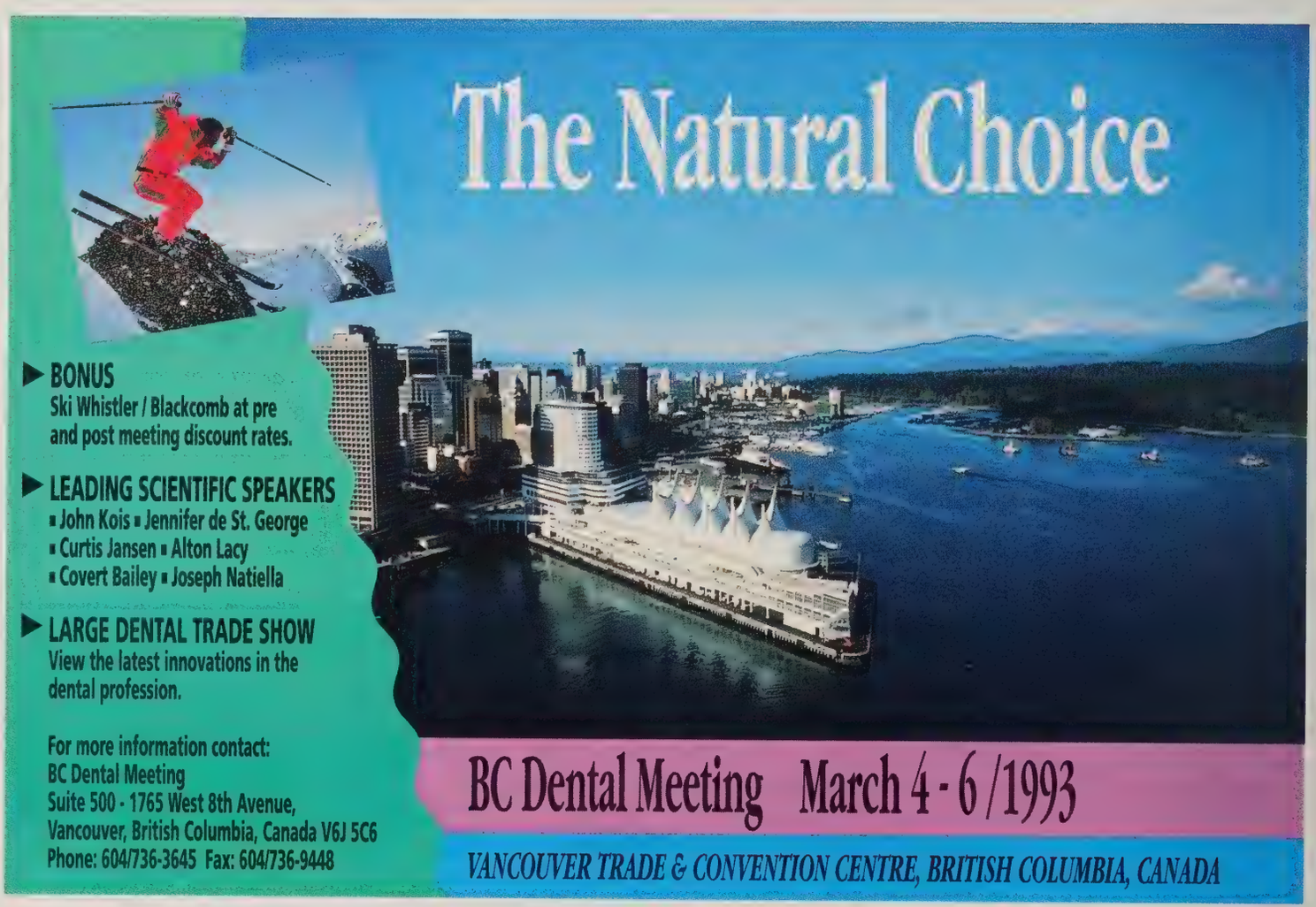
Dr Lynda Nicholson *est une prosthodontiste et professeur en prothèse amovible avec la faculté de médecine dentaire à l'Université Laval.*

Demandes de tirés à part: **Dr L. Nicholson**, *École de Médecine Dentaire, Université Laval, Québec (Québec) G1K 7P4.*

Bibliographie

1. Henderson, D., McGivney, G.P. and Castleberry, D.J. *McCracken's Removable Partial Prosthodontics*, 7th. ed. St. Louis, Mosby, 1985.
2. Borel, J.-C., Schittly, J. and Extrayat, J. *Manuel de Prothèse Partielle Amovible*. Paris, New York, Masson, 1983.
3. Henderson, D., McGivney, G.P. and Castleberry, D.J. *McCracken's Removable Partial Prosthodontics*, 7th. ed. St. Louis, Mosby, 1985.
4. Applegate, O.C. *Essentials of Removable Partial Denture Prosthesis*, 3rd ed. Philadelphia, W.B. Saunders Co., 1966.
5. Applegate, Q.C. An Evaluation of the Support for the Removable Partial Denture. *JPD* 20:112-123, 1960.
6. McLean, D.W. The Partial Denture as a Vehicule for Function. *JADA* 23:171-178, 1936.
7. Hindels, G.W. Load Distribution in Extension Saddle Partial Denture. *JPD* 22:92-100, 1952.
8. Leupold, Robert, J. A Comparative Study of Impression Procedure for Distal Extension Removable Partial Dentures. *JPD* 16:708, 1966.
9. Steffel, V.L. Relining Removable Partial Dentures for Fit and Function. *JPD* 4:496-509, 1954; *J Tenn Dent Assoc* 36:35-43, 1956.
10. Steffel, V.L. Simplified Clasp Partial Dentures Designed for Maximum Function. *JADA* 32:1093-1100, 1945.
11. Steffel, V.L. Fundamental Principles Involved in Partial Denture Design. *JADA* 42:534-544, 1951.
12. Steffel, V.L. Fundamental Principles Involved in Partial Denture Designs, with Special Reference to Equalization of Tooth and Support. *Aust Dent J* 54:328-333, 1950; *Aust Dent J* 23:68-77, 1951.
13. Kratochvil, F.J. Influence of Occlusal Rest Position and Clasp Design on Movement of Abutment Teeth. *JPD* 13:114-124, 1963.
14. Kratochvil, F.J., Thompson, W.D. and Capato, A.A. Photoelastic Analysis of Stress Patterns on Teeth and Bone with Attachment Retainers for Removable Partial Dentures. *JPD* 46:21-28, 1981.
15. Krol, A.J. Clasp Design for Extension Base Removable Partial Dentures. *JPD* 29:408-415, 1973.
16. Krol, A.J. RPI Clasp Retainer and its Modi-

fications. *Dent Clin North Am* 17:631-649, 1973.
17. Kaires, A.K. Effect of Partial Denture Design on Bilateral Force Distribution. *JPD* 6:373-389, 1956.
18. Cummer, W.E. Impressions in Partial Denture Service. *Dent Cosmos* 68(1):58-66, 1926.
19. Ibid. Impressions in Partial Denture Service. *Dent Cosmos* 70(1):72-82, 1928.
20. Ibid. Impression in Partial Denture Service. *Dent Cosmos* 70(3):278-292, 1928.
21. Addison, P.I. Mucostatic Impressions. *JADA* 31(13):941-946, 1944.
22. Hansen, C.A. and Sinser, M.T. The Segmented Framework Removable Partial Denture. *JPD* 57(6):765-768, 1987.
23. Borel, J.C., Schittly, J. and Extrayat, J. *Manuel de Prothèse Partielle Amovible.*, Paris, Masson, 1983.
24. Borel, J.C., Schittly, J. and Extrayat, J. *Manuel de Prothèse Partielle Amovible.* Paris, Masson, 1983.
25. Krol, A.J. *Removable Partial Denture Design, An outline Syllabus*, 3rd. ed. San Francisco, 1981.
26. Boree, J.C., Schittly, J. and Extrayat, J. *Manuel de Prothèse Partielle Amovible.* Paris, Masson, 1983.
27. Eliason, Charles M. *A Clasp Design for Distal-Extension Removable Partial Denture.*, University of the Pacific, School of Dentistry, San Francisco, California, 1983.
28. Henderson, D., McGivney, G.P. and Castleberry, D.J. *McCracken's Removable Partial Prosthodontics*, 7th. ed. St. Louis, Mosby, 1985.
29. Krol, A.J. *Removable Partial Denture Design, an Outline Syllabus*, 3rd. ed. San Francisco, 1981.



℞ NEW NON-NARCOTIC

TORADOL®

10mg TABLETS & 30mg IM INJECTIONS (KETOROLAC TROMETHAMINE)

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

TORADOL (ketorolac tromethamine) 10 mg tablets
TORADOL IM (ketorolac tromethamine) 15 mg/mL and 30 mg/mL intramuscular injections

THERAPEUTIC CLASSIFICATION

Analgesic Agent

ACTION

Toradol (ketorolac tromethamine) is a non-steroidal anti-inflammatory drug that exhibits analgesic activity. Its mode of action is to inhibit the cyclo-oxygenase enzyme system, thereby inhibiting the synthesis of prostaglandins, and is considered to be a peripherally acting analgesic. At analgesic doses it has minimal anti-inflammatory and antipyretic activity.

Ketorolac tromethamine is rapidly and completely absorbed when administered by both the oral and intramuscular routes, and pharmacokinetics are linear following single and multiple dosing.

Steady state plasma levels are attained after one day of Q.I.D. dosing. Based only on pharmacokinetic principles, a faster attainment of the steady state plasma level might be achieved with a loading dose of about twice the maintenance dose. This occurs when the dosing interval is approximately equal to the drug's half-life.

Following oral administration, peak plasma concentrations of 0.52 to 1.31 mcg/ml occurred 35 minutes after a single 10 mg dose. The terminal plasma elimination half-life ranged between 4.1 and 6.1 hours in healthy adults, while in elderly subjects (mean age: 72 years) it ranged between 3.0 and 6.1 hours. A high fat diet decreased the rate but not the extent of absorption of oral ketorolac tromethamine, while antacid had no effect.

Following intramuscular administration, peak plasma concentrations of 2.2 to 3.0 mcg/ml occurred an average of 50 minutes after a single 30 mg dose. The terminal plasma half-life ranged between 3.8 and 6.3 hours in young adults and between 4.4 and 8.6 hours in elderly subjects (mean age: 72).

The primary route of excretion of ketorolac tromethamine and its metabolites (conjugates and the p-hydroxy metabolite) is in the urine (91.4%) and the remainder is excreted in the feces.

More than 99% of the ketorolac in plasma is protein bound over a wide concentration range.

INDICATIONS

Orally administered Toradol (ketorolac tromethamine) is indicated for the short-term management of mild to moderately severe pain, including post-surgical pain (such as general, orthopedic and dental surgery), acute musculoskeletal trauma pain and post-partum uterine cramping pain.

Intramuscular injection of Toradol is indicated for the short-term management of moderate to severe pain, including pain following major abdominal, orthopedic and gynecological operative procedures.

CONTRAINDICATIONS

Toradol (ketorolac tromethamine) should not be used where there is a known or suspected hypersensitivity to the drug. Because of the possibility of cross-sensitivity, ketorolac tromethamine should not be used in patients in whom acetylsalicylic acid (ASA) or other non-steroidal anti-inflammatory agents induce acute asthmatic attacks, urticaria, rhinitis or other allergic manifestations. Fatal anaphylactoid reactions may occur in such individuals.

Toradol (ketorolac tromethamine) also should not be used in patients with peptic ulcer or active inflammatory disease of the gastrointestinal system.

WARNINGS

Long-term administration of ketorolac tromethamine oral formulation has shown that this drug shares the risks that other non-steroidal anti-inflammatory drugs pose to patients when taken chronically. Peptic ulceration, perforation and gastrointestinal bleeding, sometimes severe and occasionally fatal have been reported during therapy with non-steroidal anti-inflammatory drugs and may occur with ketorolac tromethamine, both in the presence or absence of previous symptoms. Elderly and debilitated individuals are most susceptible to these complications, the incidence of which increases with dose and duration of treatment. Close medical supervision is recommended in patients prone to gastrointestinal tract irritation, particularly those with a history of peptic ulcer, diverticulosis or other inflammatory disease of the gastrointestinal tract. In these cases the physician must weigh the benefits of treatment against the possible hazards.

Patients taking any non-steroidal anti-inflammatory drug including ketorolac tromethamine should be instructed to contact a physician immediately if they experience symptoms or signs suggestive of peptic ulceration or gastrointestinal bleeding. These reactions can occur at any time during the treatment. If peptic ulceration is suspected or confirmed, or if gastrointestinal bleeding occurs, ketorolac tromethamine should be discontinued and appropriate treatment instituted and the patient closely monitored.

Ketorolac tromethamine is not recommended for routine use with other non-steroidal anti-inflammatory drugs because of the potential for additive side effects.

Use in pregnancy, lactation and labour: The administration of ketorolac tromethamine is not recommended during pregnancy or lactation.

Ketorolac tromethamine is not recommended for use as an obstetrical preoperative medication or for obstetrical analgesia because of the known effects of non-steroidal anti-inflammatory drugs on uterine contraction and fetal circulation.

Use in children: Safety and efficacy in children have not been established. Therefore, Toradol is not recommended for use in children under age 16.

Use in the elderly: Because ketorolac is cleared somewhat more slowly by the elderly (See PHARMACOKINETICS) who are also more sensitive to the renal effects of non-steroidal anti-inflammatory drugs, extra caution and the lowest effective dose should be used.

PRECAUTIONS

Renal effects: As with other drugs that inhibit prostaglandin biosynthesis, elevations of blood urea nitrogen (BUN) and creatinine have been reported in clinical trials with ketorolac tromethamine. Since ketorolac tromethamine and its metabolites are excreted primarily by the kidney, patients with significant impairment of renal function (serum creatinine values greater than 5 mg/dL) should not receive ketorolac tromethamine unless the expected benefits outweigh the risks. In patients with moderately impaired renal function serum creatinine values ranging from 1.9 to 5.0 mg/dL, the rate of ketorolac clearance was reduced to approximately half of normal. The total daily dose of ketorolac tromethamine should be reduced by half in such patients. The disposition of ketorolac in dialysis patients has not been studied.

Patients who are volume depleted because of blood loss or severe dehydration may be dependent on renal prostaglandin production to maintain renal perfusion and therefore glomerular filtration rate. In such situations the use of drugs which inhibit prostaglandin synthesis might be expected to further decrease renal blood flow. Caution is advised if ketorolac tromethamine is used in such circumstances. Close monitoring of urine output, serum urea and serum creatinine is recommended until the patient is normovolemic.

Hepatic effects: Meaningful elevations (greater than 3 times normal) of serum transaminases (glutamate pyruvate (SGPT or ALT) and glutamic oxalacetic (SGOT or AST)) occurred in controlled clinical trials in less than 1% of patients. If clinical signs and symptoms consistent with liver disease develop, or if systemic manifestations occur (e.g., eosinophilia, rash, etc.), ketorolac tromethamine should be discontinued. Patients with impaired hepatic function from cirrhosis do not have any clinically important changes in ketorolac tromethamine clearance. Studies in patients with active hepatitis or cholestasis have not been performed.

Fluid and electrolyte balance: Fluid retention and edema have been observed in patients treated with Toradol. Therefore, as with many other non-steroidal anti-inflammatory drugs, the possibility of precipitating congestive heart failure in elderly patients or those with compromised cardiac function should be borne in mind. Toradol should be used with caution in patients with cardiac decompensation, hypertension or other conditions predisposing to fluid retention.

Hematologic effects: Ketorolac tromethamine inhibits platelet function and may prolong bleeding time. It does not affect platelet count, prothrombin time (PT) or partial thromboplastin time (PTT). Patients who have coagulation disorders or are receiving drug therapy that interferes with hemostasis should be carefully observed when ketorolac tromethamine is administered. Unlike the prolonged effects from aspirin, the inhibition of platelet function by ketorolac tromethamine is normalized within 24 to 48 hours after the drug is discontinued.

Blood dyscrasias associated with the use of non-steroidal anti-inflammatory drugs are rare, but could occur with severe consequences.

Infection: In common with other anti-inflammatory drugs, ketorolac tromethamine may mask the usual signs of infection.

Drug Interactions: Toradol (ketorolac tromethamine) is highly bound to human plasma protein (mean 99.2%) and binding is independent of concentration.

Prothrombin time should be carefully monitored in all patients receiving oral anticoagulant therapy concomitantly with ketorolac tromethamine.

Ketorolac tromethamine does not alter digoxin protein binding.

In vitro studies indicated that at therapeutic concentrations of salicylates (300 mcg/mL), the binding of ketorolac tromethamine was reduced from approximately 99.2% to 97.5%. Therapeutic concentrations of digoxin, warfarin, acetaminophen, phenytoin, tolbutamide and piroxicam did not alter ketorolac tromethamine protein binding. Since ketorolac tromethamine is a highly potent drug and present in low concentrations in plasma, it would not be expected to displace other protein-bound drugs significantly.

There is no evidence in animal or human studies that ketorolac tromethamine induces or inhibits the hepatic enzymes capable of metabolizing itself or other drugs. Hence, it would not be expected to alter the pharmacokinetics of other drugs due to enzyme induction or inhibition mechanisms.

Ketorolac tromethamine mildly reduces the diuretic response to furosemide in normovolemic subjects. Inhibition of renal lithium clearance leading to an increase in plasma lithium concentration and potential lithium toxicity has been reported with some non-steroidal anti-inflammatory drugs. The effect of ketorolac tromethamine on lithium plasma levels has not been studied.

Concomitant administration of methotrexate and some non-steroidal anti-inflammatory drugs have been reported to reduce the clearance of methotrexate, enhancing the toxicity of methotrexate. The effect of ketorolac tromethamine on methotrexate clearance has not been studied.

There is limited experience on concurrent administration with morphine. Available information shows no evidence of adverse interactions. The extent of a possible narcotic-sparing effect of ketorolac tromethamine is currently under investigation.

ADVERSE EFFECTS

Toradol tablets: The incidence of adverse reactions in approximately 600 patients and subjects receiving short-term oral therapy (less than 2 weeks) with Toradol (ketorolac tromethamine) are listed below. The most common adverse effects include Gastrointestinal: dyspepsia (2%), gastrointestinal pain (2%), nausea (2%). Central nervous system: headache (2%), dizziness (2%).

The following adverse events are rare but have been reported (less than 1%): Gastrointestinal: flatulence, gastritis. Respiratory: dyspnea. Dermatologic: urticaria, rash, pruritus. Metabolism/nutritional: edema. Body as a whole: asthenia Hemic and lymphatic: purpura. Musculoskeletal: myalgia.

Toradol IM: The adverse reactions listed below were reported to be probably related to Toradol IM in clinical trials in which patients received up to 20 doses of 30 mg of intramuscularly administered Toradol over a period of up to five days.

Incidence between 3 and 9%: Gastrointestinal: nausea, dyspepsia, gastrointestinal pain. Central nervous system: drowsiness.

Incidence between 1 and 3%: Gastrointestinal: diarrhea. Central nervous system: dizziness, headache, sweating. Body as a whole: edema. Injection site pain was reported by 2% of patients in multi-dose studies (vs. 5% for morphine control group).

Incidence 1% or less: Gastrointestinal: constipation, flatulence, gastrointestinal fullness, liver function abnormalities, melena, peptic ulcer, rectal bleeding, stomatitis, vomiting. Body as a whole: asthenia, myalgia. Cardiovascular: vasodilatation, pallor. Hemic and lymphatic: purpura. Nervous system: dry mouth, nervousness, paresthesia, abnormal thinking, depression, euphoria, excessive thirst, inability to concentrate, insomnia, stimulation, vertigo. Respiratory: dyspnea, asthma. Urogenital: increased urinary frequency, oliguria. Dermatologic: pruritus, urticaria. Special senses: abnormal taste, abnormal vision.

OVERDOSAGE

The absence of experience with acute overdosage precludes characterization of sequelae and assessment of antidotal efficacy at this time. In a gastroscopic study of healthy subjects, daily doses of 360 mg given over an 8-hour interval for each of five consecutive days (3 times the highest recommended dose) caused abdominal pain and peptic ulcers which recovered after discontinuation of dosing.

DOSAGE AND ADMINISTRATION

Adults: Dosage should be adjusted according to the severity of the pain and the response of the patient

Oral: The usual oral dose of Toradol (ketorolac tromethamine) is 10 mg every 4 to 6 hours for pain as required. Doses exceeding 40 mg per day are not recommended.

Toradol is recommended for short-term use only i.e. for a maximum of a few weeks.

Parenteral: The recommended usual initial dose is 30 mg. Subsequent dosing may be 10 mg to 30 mg every 4-6 hours as needed to control pain. A lower initial dose may be suitable for patients under 50 kg in body weight, over age 65 years and/or with less severe pain at baseline. In the initial post-operative period, more frequent dosing (e.g., every 2 hours) may be employed, but the total daily dose should not exceed 120 mg. Dose above 120 mg could cause drug toxicity (see Warnings & Precautions). If supplemental analgesia is required, a concomitant low dose of opiate can be used

The administration of continuous multiple daily doses of Toradol IM should not exceed 5 days for Injection dosing. There has been limited experience with dosing for more than 5 days since the vast majority of patients have transferred to oral medication or no longer required analgesic therapy after this time.

Directions for use: Insert the plunger into the syringe barrel and thread it onto the screw. WITHOUT REMOVING THE NEEDLE GUARD, apply quick, firm pressure to the plunger to break the inner seal (you will feel it let go). Pull back on the plunger slightly to relieve pressure. Remove the needle guard by twisting as you pull. Use the unit as you would a normal syringe. Dispose of properly

CONVERSION FROM PARENTERAL TO ORAL THERAPY

Toradol tablets may be used either as monotherapy or as follow-on therapy to parenteral ketorolac. In the latter case, the total combined daily dose of ketorolac should not exceed 120 mg on the day the change of formulation is made, this includes a maximum of 4 of the 10 mg tablets.

Toradol (ketorolac tromethamine) is a Schedule F drug.

COMPOSITION

Toradol Tablets: Each Toradol tablet contains ketorolac tromethamine, the active ingredient, with microcrystalline cellulose, lactose and magnesium stearate. The coating suspension contains hydroxy-propyl-methylcellulose, titanium dioxide and polyethylene glycol.

Toradol IM: Toradol IM is available for intramuscular administration as: 15 mg in 1 mL (1.5%), or 30 mg in 1 mL (3%) of ketorolac tromethamine in sterile solution. The 15 mg/mL solution contains 10% (w/v) alcohol, USP, and 6.68 mg sodium chloride in sterile water. The 30 mg/mL solution contains 10% (w/v) alcohol, USP and 4.35 mg sodium chloride in sterile water. The pH is adjusted with sodium hydroxide or hydrochloric acid. The sterile solutions are clear and slightly yellow in colour.

STABILITY AND STORAGE RECOMMENDATIONS

Toradol Tablets: Store at room temperature. The blister package tablets should be protected from light.

Toradol IM: Store at room temperature with protection from light.

AVAILABILITY OF DOSAGE FORMS

Toradol (ketorolac tromethamine) is available as 10 mg white round film coated tablets with one side printed in red with TORADOL inside a bold T and the other side with Syntex. Toradol (ketorolac tromethamine) 10 mg tablets are available in bottles of 100 and 500 tablets.

Toradol IM is available in 1 mL syringes containing 15 or 30 mg/mL of ketorolac tromethamine.

Product Monograph available on request.

REFERENCES

1. TORADOL Product Monograph, Syntex Inc., Feb. 1991. **2.** Compendium of Pharmaceuticals and Specialties, 26th Edition, 1991. **3.** Yee JP et al. *Pharmacother* 1986; 6(5):253-61. **4.** Brown CR et al. *Pharmacother* 1990; 10(6 Pt 2):45S-49S. **5.** O'Hara DA et al. *Clin Pharm Ther* 1987; 41(5)556-61. **6.** Fragen RJ. Data on File, Syntex Inc., Document CL3837, 1987. **7.** Cherry C et al. Data on File, Syntex Inc., Document CL3835, 1987. **8.** Stanski DR et al. *Pharmacother* 1990; 10(6 Pt 2) 40S-44S. **9.** Data on File, Syntex Inc., Document #90027-1, 1989. **10.** Forbes JA et al. *Pharmacother* 1990; 10(6 Pt 2): 77S-93S. **11.** Forbes JA et al. *Pharmacother* 1990; 10(6 Pt 2): 94S-105S. **12.** Mehlisch D et al., Data on File, Syntex Inc., Document CL3686. **13.** Data on File, Syntex Inc., Document #90027-3, 1989. **14.** Rooks II WH et al. *Pharmacother* 1990; 10(6 Pt 2): 30S-32S. **15.** Mangioni C et al. Data on File, Syntex Inc., Document CL4899, 1989. **16.** Hutteman W et al. Data on File, Syntex Inc., Document CL4882, 1989. **17.** Nedelman P et al. Data on File, Syntex Inc., Document CL3635, 1986. **18.** Cutting CJ et al. Data on File, Syntex Inc., Document CL4740, 1989. **19.** Diebschlag W, Nocker W, Data on File, Syntex Inc., Document CL5468, 1989. **20.** Molinie J et al. Data on File, Syntex Inc., Document CL4624, 1988. **21.** Herrera JMC et al. Data on File, Syntex Inc., Document CL4886, 1989. **22.** Bloomfield S et al. Data on File, Syntex Inc., Document CL3658, 1986. **23.** Sunshine A. Data on File, Syntex Inc., Document CL3674, 1986.

Toll-free Toradol Information Hotline: 1-800-561-5481.

SYNTEX®

Syntex Inc.* Mississauga, Ont./Montréal (Qué.)
*Registered user of all ® trademarks.

PAAB CCPP MEMBER PMAC

Upjohn®

The Upjohn Company of Canada
Don Mills, Ontario

CANADIAN FUND FOR DENTAL EDUCATION NOW ACCEPTING FELLOWSHIP APPLICATIONS FOR 1993/1994 ACADEMIC YEAR

CFDE Fellowships for Teacher/Researcher Training

To be eligible, candidates must be Canadian citizens or permanent residents who have completed an undergraduate course in dentistry, a dental hygiene program, or a program in science, and qualify for admission to a graduate or other advanced education program.

Applicants must declare their firm intention to become a teacher and/or researcher in a Canadian Faculty of Dentistry or Allied Dental Health Training Program. The minimum requirement consists of two years full service to an institution for each year of Full Fellowship support or two years half-time service to an institution for each year of Half-Fellowship support.

CFDE fellowships are not tenable in addition to another major award.

Warner-Lambert Sponsored Fellowships for Existing Teachers

Three individual Canadian Fund for Dental Education fellowships, sponsored by Warner-Lambert Canada and valued at $2,500 each, are offered annually to a:

- university dental teacher
- dental hygiene teacher or community health dental hygienist
- dental assisting teacher

Purpose

These awards provide established teachers with the opportunity to pursue studies in their individual field of dental education or research. These fellowships support non-degree programs of relatively short duration and are not intended for those on sabbatic leave. Conventions and similar events are not considered appropriate programs of study within the terms of fellowship.

Eligibility

Candidates must be a full-time member of the teaching staff of a Canadian dental faculty, school of dental hygiene or dental assisting, with a minimum of five years university or community college teaching experience; or a community health dental hygienist engaged in an institution or public health setting with a minimum five years experience in community health dental hygiene.

All applications are reviewed by the CFDE's Advisory Committee on Fellowship Selection and recommendations are made to the Fund's Board of Trustees. The winner of each award will be announced after the Board's annual meeting in May.

Applications for each of the above fellowships may be obtained by contacting: the Canadian Fund for Dental Education, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6, (613) 731-0493.

Deadline for application is March 1, 1993.

Using Time to Maximize Your RSP Investment

U.S. scientist and statesman, Benjamin Franklin, definitely did not have RSPs in mind when he said that "time is money." But today, more than 200 years after Franklin's death, his saying can quite aptly be applied to retirement savings, since you can maximize your RSP investment by using time to your advantage. Here are some ways that your RSP can earn more.

1. The Magic of Compound Interest

Time is your ally when you consider the wonders of compounding. If you place your RSP contribution into an investment vehicle that earns compound interest, your investment will earn a larger amount of interest each year, even if you never contribute to your RSP again. When the concept of compounding is applied, interest is calculated on the sum of the initial investment *plus* the annual interest earned.

For example, if you invest $5,000 in an RSP at eight per cent interest, this investment, through compounding, will multiply to almost $7,500 in the fifth year. If you invest $5,000 each year for the same five-year period, again at an eight per cent compound rate of return, your investment will grow to almost $32,000 (see **Table I**).

And the sooner you start, the more you'll gain (**Table II**). The future value of your investment is based on the number of years it is given to compound, as well as the interest rate.

2. The Benefits of Dollar-Cost Averaging

Even though the deadline for 1992 RSP contributions is March 1, 1993, you benefit substantially when you make your contribution before the deadline. Ideally, your RSP funds should have an entire year to earn returns for you (see **Table III**), but if you don't have the money to invest at the beginning of the year, you can still come out ahead if you set up a regular monthly RSP contribution plan rather than waiting until the deadline. This way you contribute to your RSP in small manageable portions and earn tax-sheltered interest throughout the year.

You will also eliminate the worry of deciding when is the right time to invest if you contribute to your RSP at regular intervals before the deadline. The theory of "dollar-cost averaging" assumes that if an investor purchases units in a particular fund on a regular basis, he or she will be further ahead at the end of the year. Regular investing evens out the impact of interest rate and market fluctuations on the unit purchase price.

Most financial institutions will set up a monthly payment plan at no charge, transferring money from your savings or chequing account to your RSP. Many CDA RSP members are already making regular contributions through the post-dated cheque service offered by CDSPI. You can open a tax-sheltered CDA RSP account with an initial deposit of only $50 and you can make additional deposits of $25 or more whenever you wish.

Don't defer your RSP contribution

If you did not intend to make an RSP contribution for 1992, here are three reasons why you should not defer your contribution until a future year, even though RSP rules allow you to carry any unused contribution amounts forward for up to seven years.

- 1. If you decide to defer your contribution, you will pay more taxes in that year. You should contribute the maximum allowed and avoid paying tax on your savings outside and inside your RSP.
- 2. You may never be financially able to make up your deferred contribution. If your allowed maximum is $12,500 and you defer your contributions for seven years, you will have an overwhelming $87,500 worth of contributions to catch up on. Consider if you can even afford to double your RSP contribution after you miss one year.
- 3. You lose out on earned interest forever. You will never be able to reclaim this lost time and lost opportunity to earn compound growth.

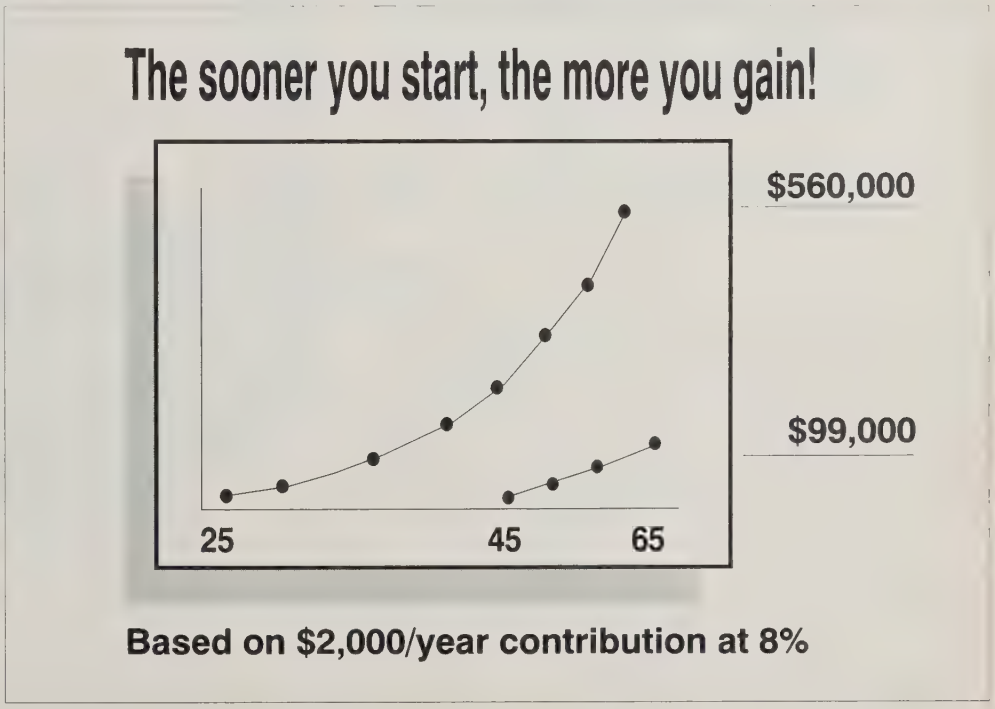


Table I:

Future Worth of Your RSP*
(Based on 8% compound rate of return)

No. of Years to Retirement	Amount Contributed Annually		
	$2,000	$5,000	$10,000
5	$ 12,672	$ 31,680	$ 63,360
10	$ 31,290	$ 78,225	$ 156,450
15	$ 58,648	$ 146,620	$ 293,240
20	$ 98,846	$ 247,115	$ 494,230
25	$ 157,908	$ 394,770	$ 789,540
30	$ 244,692	$ 611,730	$1,223,460
35	$ 372,204	$ 930,510	$1,861,020
40	$ 559,562	$1,398,905	$2,797,810

NOTE: Due to rounding, this chart may contain minor discrepancies. This chart serves as an example only – RSPs do not guarantee the dollar value or growth of their investments.

It may take some discipline to make regular and early contributions, but remember that you benefit in the long run. So, if you have not begun making your contribution for 1992, start now. Consider investing in your own CDA RSP. The benefits of participation are only available to Canadian dental professionals and their families.

The CDA RSP has a proven performance record of building retirement income and increasing personal wealth for thousands of dentists. After 35 years, the plan keeps on growing and getting stronger. Currently, Canadian dentists have $170 million invested in the CDA RSP. The CDA RSP funds are managed by professionals at Canagex Associates Inc. – one of Canada's leading financial experts.

There is no fee for switching between funds, and since the CDA RSP is a "no-load" RSP you never pay commissions. You only pay a minimal management fee of less than one per cent. Canadian Dental Service Plans Inc. (CDSPI), a non-profit corporation, administers the CDA RSP and performs duties such as processing quarterly statements, transaction confirmations, post-dated cheques and tax receipts.

"I can always rely on CDSPI."

Recently, CDA RSP participant, Dr. Michael Weiss of Laval, Québec, wrote CDSPI about his decision to invest in a CDA RSP:

"I think planning for the future is important – that is why I invest in the CDA RSP. I feel confident about the service I receive from CDSPI, the administrators of the CDA RSP. CDSPI provides the highest level of information services that I've ever seen. Whether it's clarifying RSP regulations or explaining my contribution options, I know I can always rely on CDSPI."

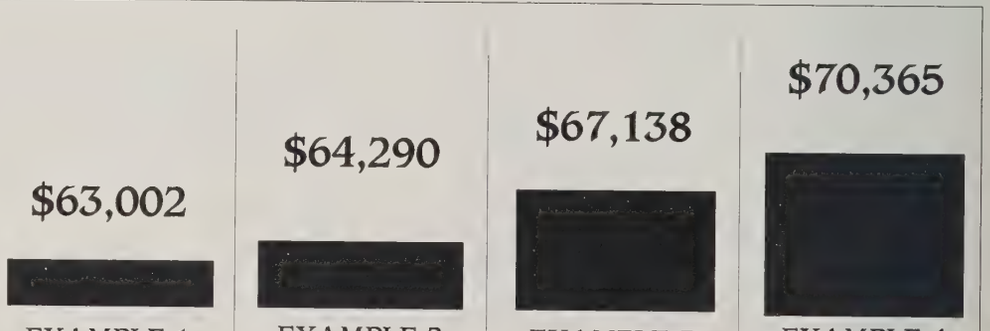
To find out more about the CDA RSP, call CDSPI at (416) 296-9401 in Metro Toronto or toll-free outside Metro at 1-800-561-9401 and ask for extension 253.

For service in French, call 1-800-665-9401, extension 234. Our representatives will be pleased to answer your questions. You can request the CDA RSP information kit which outlines the operation, performance and portfolio makeup of each fund. ■

CDSPI

TABLE II:

The sooner you get your money into an RSP, the more it will grow!



EXAMPLE 1	EXAMPLE 2	EXAMPLE 3	EXAMPLE 4
If you contribute $1,000 on February 28 (for the preceding tax year contribution) every year for 20 years commencing February 28, 1993.	If you contribute $83.33 using a Pre-Authorized Chequing Plan every month for 20 years commencing July 2, 1992.	If you contribute $1,000 every July 3 for 20 years commencing July 2, 1992.	If you contribute $1,000 every January 3 (for the current tax year contribution) for 20 years assuming you began January 2, 1992.

** Assuming a 10% per annum interest rate each year over the period calculated and paid annually.*

BISCO

INTRODUCES

THE 4TH GENERATION

UNIVERSAL ADHESIVE SYSTEM

FEATURING UNIQUE WET (MOIST)* BONDING

ALL-BOND® 2 DUAL CURABLE

ONE BONDING SYSTEM FOR ALL YOUR BONDING NEEDS

The ALL-BOND®2 system bonds to **dentin, enamel, metal** (precious and non-precious) **composite,** and **amalgam**

- Easy to follow instruction cards for all techniques
- Compatible with all composite brands
- Root desensitizing

*WET OR (MOIST) DOES NOT MEAN SALIVA CONTAMINATION

ALL-BOND®

OPAQUER/C&B

Companion kit for metal bonding, crown and bridge cementation

- Five shades of opaquer to attain all Vita Shades

ALSO AVAILABLE

ALL-BOND®

LINER-F

- Fluoride releasing
- Dual curable filled resin
- Amalgam bonding

BISCO THE SOURCE FOR COMPOSITE & ADHESIVE TECHNOLOGY

BISCO

Bisco Dental Products (Canada) Inc.
101-11500 Bridgeport Road
Richmond, B.C. V6X 1T2 1-604-276-8662
1-800-667-8811 (British Columbia, Alberta, Saskatchewan, Manitoba, Quebec)

Clinical Research Dental Supplies and Services Inc.
P.O. Box 28040
London, Ontario
N6H 5E1
1-800-265-3444 (Ontario)

"I'm comfortable with CDAnet because dentistry is in complete control. That ensures that my claim data is private and secure."

Dr. Gary Hyman
Winnipeg, Manitoba

CDAnet...
A REVOLUTIONARY ADVANCE IN CLAIMS PROCESSING

CDAnet is now at work in hundreds of dental offices across Canada. And it is delivering on its promises: speedy claims processing, quick claims payment, and satisfied patients.

CDAnet – a revolutionary advance in claims processing.

Get it working for you.

For more information call:
1-800-267-9701.

CDAnet™
Dentistry's National Information Network

FDI 93

GÖTEBORG

THE MAGNIFICENT GATEWAY
TO SCANDINAVIA

The beautiful city of Göteborg on the west coast of Sweden will host the **1993 FDI ANNUAL WORLD DENTAL CONGRESS**, August 29 – September 2. An exciting scientific programme will be presented in first class congress facilities, centrally located in Göteborg. Main themes for the congress will be

- *Implant dentistry – success and failure*
- *Clinical application of dental materials – whom to trust?*
- *Preventive dentistry in practice*

A vast dental exhibition will be held in conjunction with the congress.

Attend the 1993 FDI World Dental Congress in Göteborg, Sweden with CDA Conventions and Participate in the Official 1993 FDI Tour Program

Göteborg – beautiful and charming harbour city in a breathtaking archipelago.

CDA Conventions is offering CDA Members a special package deal to the 1993 FDI World Dental Congress being held in Göteborg, Sweden. The itinerary combines a trip to the 81st World Dental Congress with a unique out-of-country seminar program in the fascinating country of Turkey.

Travellers will depart from Toronto on Sunday, August 29th and arrive in Göteborg on Monday, August 30th. Departure from Göteborg to begin your odyssey to Turkey will take place on Friday, September 3 via London, England. The itinerary includes stops in Istanbul, Ankara, Cappadocia, Pamukkale, Denizil, Khushadasi and Izmir. For more details on the 1993 FDI World Dental Congress and the travel itinerary contact CDA Conventions at 1-800-267-6354.

If you're thinking of becoming an associate, you've got to find an unequaled opportunity for professional growth. Finding such a thriving practice is one thing; getting jump-started once you're there is another.

And that's where ExperDent can help. With access to several reputed practitioners seeking qualified associates, "matchmaking" comes naturally to us.

"Whether you're picking up your instruments for the first time, finally putting them down (or straddling somewhere in between), you've got your work cut out for you. And it's not just in the operatory."

Russell Knight, B.B.A.

If you're already an associate (but not busy enough), ExperDent can step in and pave the way for success. It takes specific plans and meticulous attention to detail but we'll get you busy. (We've done it time and time again.)

If you're looking for an associate, be it because you're too busy or you're ready to wind down your practice, ExperDent can help you prepare for this all-important transition.

Whatever transition you're going through, ExperDent can help with the weighty details. For more details about how ExperDent can help you, please contact Russell Knight, B.B.A., our practice transition specialist. If there is anyone who knows how to handle the fragile nature of transitions, it is he. Russell has given new meaning to the motto "Handle With Care".

FRAGILE: HANDLE WITH CARE

compatibility • maximizing transition value • associate arrangement • negotiating compensation • growth plan • agreements • increasing practice goodwill

ExperDent*™

2892 S. Sheridan Way, Oakville, Ontario L6J 7G9
Telephone: (416) 829-0011 **Fax:** (416) 829-3072
#200-4161 Dawson Street, Burnaby, BC. V5C 4B3
Telephone: (604) 299-8771 **Fax:** (604) 299-8309

*** Trademark of ExperDent Consultants Inc.**

CDA Access Ads

CDA ACCESS ADS offer guaranteed* access to Canada's largest audience of dentists. To place your ad, call OLA MURPHY toll-free across the country at **(800) 661-5004.** In the Toronto calling area, please dial **(416) 278-6700.**

**If you are not satisfied with the results of your ACCESS AD, we will offer you your money back in the form of a credit for future use. Please call for more information.*

Replying to a CDA Access Box Number?
Simply write to:
CDA Access Box ___,
1382 Hurontario St.,
Mississauga, Ont. L5G 3H4.
Or you may fax your reply to (416) 278-4850, noting the appropriate box number.

Offices & Practices

BRITISH COLUMBIA - Southern: General family practice with a preventative emphasis. Independently evaluated and appraised as being unsurpassed in quality. Located in brand new office building. Dental office occupies 2,000 sq. ft. on main floor with a 2,000 sq. ft. basement. Yearly gross approximates $800,000. Could easily accommodate two hard-working dentists. Great support staff. Owner returning for postgraduate training. Please reply to CDA ACCESS Box 2526. (10/12)

BRITISH COLUMBIA - Central: Small town, great outdoors. Well established, busy, computerized general practice for sale. Excellent staff, five operatories, lab, panorex. Solo practitioner grossing $550,000 without hygienist. Selling for less than annual net. Retiring, but willing to stay on part-time to facilitate the transfer. Reply to CDA ACCESS Box 2549. (09/02)

B.C. - Vancouver Suburbs
Pediatric practice - established Ortho/Pedo practice. Tastefully decorated office with four operatories and central nitrous.
Excellent opportunity for growth.
Medi-Dent Professional Services
Have over 20 practices for sale in B.C.
For more information
— photos — or videos
Contact: Al Heaps (604) 669-9857.(06/12)

FOR INFORMATION ON B.C. DENTAL PRACTICES FOR SALE CALL
Health Pro Management Ltd.
17335 - 59th Ave,
Surrey, B.C. V3S 1N9
tel (604) 576-2866 fax(604) 576-9180

ALBERTA: For sale. One hour from Edmonton. Established rural practice with low overhead. Three operatories. Available immediately. Phone (403) 462-4925. (11/11)

ALBERTA - Edmonton: Growing general practice for sale. Three operatories, panorex. 1,400 sq. ft., stripmall location, recent renovations. Owner relocating. Practice statistics and equipment inventory available upon request. Phone (403) 469-3250 after 6:00 p.m. (09/11)

ALBERTA - Edmonton: Busy practice for sale; 2,500 sq. ft.; six ops. (four full, two hygiene); more plumbed. Part-time associate. Owner moving. (403) 465-0995.(10/11)

ALBERTA - Calgary: Family dental practice with great potential in a new residential area. Please reply to CDA ACCESS Box 2553.(10/11)

SASKATCHEWAN - Saskatoon: Superb location, eight-year-old dental practice for sale, 1,600 sq. ft. of beautiful new decor, excellent income, dentist relocating. Reply to CDA ACCESS Box 2550. (09/11)

ONTARIO - CALEDON
Practice For Sale
Newly renovated, 650 sq. ft., 2 operatories, dental office in plaza. **Very reasonably priced**, ideal for recent grad. Call Dr. Osuch (416) 270-8652 (Mon-Fri., 9-5). (07/11)

MAPLE - ONTARIO
20 minutes north of Toronto, three-year-old dental practice for sale. Beautifully located in a professional building in the centre of a wealthy growing community. Two ops. fully equipped and third wired. Sitting area with marble floors and t.v., low overhead, good referrals and excellent opportunity. Call Pina mornings (416) 787-5557, evenings until 10:00 & weekends (416) 737-9332. (07/11)

ONTARIO REGION
Growing country practice.
Located near two major towns, with excellent potential. Investment of only $95,000 enables you to start practice immediately with a cash flow. Computerized. Please reply to **CDA ACCESS Box 2552.**(10/12)

NOVA SCOTIA: Rural growing family dental practice, one hour from Halifax. Two fully-equipped ops., 900 sq. ft., low overhead, numerous recreational activities available. Located in economically stable growing community. Well priced. Please reply to CDA ACCESS Box 2551. (09/11)

NOVA SCOTIA - Annapolis Valley: Practice for sale in Nova Scotia Annapolis Valley. Very busy family practice, 1,200 sq. ft. office in a medical/dental professional centre. Ultramodern dental set-up, good gross, priced to sell. For more information call (902) 245-5666. (04/13)

NEWFOUNDLAND: General family practice for sale. Hospital setting, serving 10,000. Easily supports two dentists, with a potential satellite clinic. Two state-of-the-art operatories, and a third with X-ray unit. Excellent lease arrangements, owner

will assist in transition. Please reply to CDA ACCESS Box 2535. (02/12)

US FORTUNE 500 CO.
Expanding to Pacific Rim Countries. Extraordinary unlimited income featuring time freedom and predictable 3-5 year retirement. Often a viable supplement to your existing career.
Call Viny Dolce at (407) 969-1001 (11/13)

Positions Available/Sought

LOCUM LOCATORS
can find you
A) REPLACEMENT DENTIST
B) A LOCUM TO GO TO
COLLECT (403) 791-7799.
(07/12)

ALBERTA - Edmonton: Periodontist with well-established, progressive, busy periodontal practice is seeking another Periodontist to join him on a cost sharing or associate basis. Excellent opportunity for capable Periodontist qualified to practise in Alberta. Contact Yvette (403) 436-0108. (01/11)

THE UNIVERSITY OF MANITOBA
Faculty of Dentistry

ASSISTANT/ASSOCIATE PROFESSOR OF ORAL BIOLOGY

The University of Manitoba, Faculty of Dentistry invites applications for a tenure track appointment as Assistant/Associate Professor commencing JULY 1, 1993, or earlier.
Applicants must have a Ph. D. degree and published evidence of research ability. A D.D.S. /D.M.D. degree or previous experience teaching undergraduate dental and graduate students would be an asset. The successful candidate will be required to teach general and oral physiology to dental and dental hygiene students, and participate in faculty courses at the graduate level. The successful candidate will be expected to develop a strong externally-funded research program. The Department is multidisciplinary carrying out research in anatomy, biochemistry, cell biology, oral physiology and microbiology.
The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, aboriginal people and persons with disabilities. The University offers a smoke-free environment, save for specially designated areas. This advertisement is directed to Canadian citizens and permanent residents.
Letter of application, complete with curriculum vitae and the names and addresses of three referees, should be forwarded to:

Dr. R.E. Jordan, Faculty of Dentistry
University of Manitoba
Winnipeg, Manitoba R3E 0W2

The closing date for applications is JANAURY 1, 1993.

DEAN OF DENTISTRY
The University of British Columbia

UBC seeks outstanding candidates for Dean of the Faculty of Dentistry. The Faculty is known for its excellence in research and teaching and its international involvement in the improvement of oral health. It comprises three departments: Oral Biology, Oral Medical and Surgical Sciences, and Clinical Dental Sciences with a total of 35 full-time and 110 part-time faculty. Programs include the B.D.Sc., D.M.D., post-graduate specialty training in Periodontics, M.Sc. in Dental Science and Ph.D. in Oral Biology, Oral Medicine, Oral Pathology and Oral Radiology.

The competition will close **January 15, 1993** or when an appointment is concluded. The successful candidate is expected to take office **July 1, 1994 or earlier.**

UBC welcomes all qualified applicants, especially women, aboriginal people, visible minorities and persons with disabilities.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.

Applications and nominations, accompanied by a detailed curriculum vitae and the names of three referees, should be directed to:

Daniel R. Birch
Vice President Academic and Provost
The University of British Columbia
6328 Memorial Road
Vancouver, B.C. V6T 1Z2

Selling a practice?

Leasing an office?

Buying Equipment?

Renting your vacation property?

To place your ***CDA ACCESS AD*** *just call*

OLA MURPHY

Toll-free at ***(800)661-5004.***
In Toronto, just dial ***(416) 278-6700.***

ALBERTA - EDMONTON
Mature D.D.S. with background in general dentistry and prosthetics seeks a full of part-time associateship in Edmonton or surrounding area. All offers will be considered.
Phone (403) 435-1872 (11/11)

ALBERTA - EDMONTON
Experienced dentist wishes to relocate his well-established practice with current 1,500 patient base. Will associate, cost-share or possibly buy-in.
Prefer **DOWNTOWN AREA,**
west end or University.
Extensive background in fixed and removable prosthodontics, implants, endodontics and cosmetic dentistry.
Contact - Robert (403) 425-9944
(EDMONTON). (11/12)

SASKATCHEWAN - Regina: Seeking dental associate for modern office in large medical/dental facility. Good opportunity for the right person. For details call Dr. Ronald Katz, (306) 924-1494, or write to: 235B Albert Street N., Regina, Saskatchewan S4R 3C2. (08/11)

MANITOBA: Paid vacation to Hawaii for one week, for an associate willing to practice his or her skills where they are needed most. This is for a very busy modern computerized practice in Thompson, Manitoba. Willing to stay for a minimum of one year. Excellent remuneration. Present associate returning to graduate school. Please contact Judy at (204) 677-4555. (11/13)

MANITOBA - Winnipeg: Specialty practice of Oral and Maxillofacial surgery. The partners of an existing specialty practice are seeking out a talented surgeon to add, in an associateship position, to a dynamic urban practice. All surgical facets of the specialty are currently performed. Please respond indicating your interest to CDA ACCESS Box 2556. (11/12)

Associate Wanted
Flin Flon, Manitoba
HAWAII — MEXICO — CRUISING IN THE CARIBBEAN

A two week paid vacation is part of the benefit and experience, you will enjoy by working in this high gross - high income practice.
Experience life in a friendly general family practice in a small community.
Full clinical freedom.
You may choose to stay forever or return to the south after a year or more with a padded account, having practiced where you were really needed — A good feeling.
Also wanted locum for Summer of 1993.
For further details please phone collect
Dr. Malcolm T. Crozier
(204) 687-4214 office, (204) 687-5580 home, Fax (204) 687-4833. (11/12)

ASSOCIATE PARTNER

Unique opportunity for qualified Oral & Maxillofacial Surgeon. Well established practice, population drawing area of 200,000, exceptional hospital privileges at three hospitals, full-scope hospital and office practice. **Location Thunder Bay, Ontario, Canada. Call (807) 344-3973, fax (807) 345-3395.** (10/12)

Oral Maxillofacial Surgeon

with fellowship to The Royal College and experience in trauma and orthognathic surgery wishes an associateship with an existing O.M.F.S. practice in Ontario or Prairie provinces. Please reply with telephone # to **CDA ACCESS Box 2546.** (11/01)

ONTARIO - Ottawa: Bilingual dentist needed for maternity leave from mid January to April 1993. Please call Madeleine (613) 748-0633/0634. (09/11)

ONTARIO - Ottawa: Ottawa south dental office requires another dentist to rent a fully-equipped operatory, share expenses. Part or full time. Call (613) 738-1763. (10/11)

ONTARIO: Kingston/Belleville suburb population of 3,000 plus. Associate required, a good opportunity if you only want to work three days per week or more. Please call Madeleine at (613) 748-0633 between 9 a.m. & 6 p.m. (11/01)

ONTARIO - Windsor: Ambitious experienced associate wanted for long-term to join two dentists in a busy general practice. Has to be well trained in all aspects of dentistry, second language, oriental, for example, is an asset. Send resume with photo to CDA ACCESS Box 2555. (11/01)

ONTARIO - Windsor: Associate required to assume an established full-time position in a busy dental practice. Present associate relocating in January of 1993. For more information on this unique opportunity please reply to CDA ACCESS Box 2554. (11/12)

ONTARIO - Sudbury: Present young dentist with two very busy well-established offices seeks an associate or partner. Ideal for one or two associates. Tax incentives, government grant, and hospital privileges available. Please call Dr. F. Couto at (705) 522-4252, (705) 523-1643 and (705) 898-2166. (11/11)

NEW BRUNSWICK - Moncton: Associate required immediately for preventive oriented family practice. Practice situated in a modern medical building. Opportunity also exists for cost-sharing or partnership arrangements. Owners require time away from the practice periodically to pursue other professional interests. Please contact Dr. Fenton Smyth (506) 857-4067 or (506) 383-9032. (11/12)

YUKON - Whitehorse: Hygienist needed immediately. Full-time, energetic, devoted hygienist required in a six-operatory preventative practice in booming downtown Whitehorse. Experience is preferred but new grads are welcome. Salary, benefits to be discussed. Serious applicants please, fax resume (403) 668-5121, or leave message at (403) 633-4528. (08/11)

YUKON - Whitehorse: Associate wanted. Full-time or continuing locum needed in a very busy, bright, well-staffed, friendly, six-operatory practice in booming downtown Whitehorse. Ideal opportunity for motivated, hard-working, cheerful individual who wants the best of both worlds - busy patient flow and the beautiful outdoors (skiing, hiking, camping, canoeing, etc.) Serious applicants please, fax resume (403) 668-5121, or leave message at (403) 633-4528. (08/11)

NWT Eastern Arctic

Experienced general dentist required to provide dental services in the Baffin Region. Services are provided up to four times per year each to various communities. A long-term commitment is requested. For full details please reply to: **The Iqaluit Dental Clinic, Attn. Dr. C. Pastori, P.O. Box 479, Iqaluit, NWT X0A 0H0 or fax (819) 979-1365.** (10/11)

Vacation Rentals

BRITISH COLUMBIA - Whistler: Luxury three bedroom, two bathroom condo at base of Blackcomb, sleeps two - eight; two kings, two twins, one queen, six appliances, TV, VCR, 75-yard walk, then ski to lifts. Call (519) 886-8980 Dr. Clarke. (09/12)

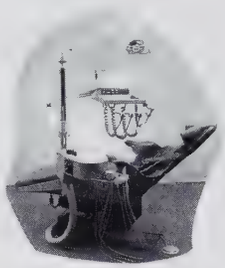
LONDON FLATS

for your London stay. Consider our London flats near the Chelsea Bridge/Battersea Park. Elegantly furnished, centrally located with a 2-hour maid service, Monday through Friday. Flat 18 accommodates five people in three bedrooms with bath/shower and fully equipped kitchen. Flat 16 accommodates three people in two bedrooms, bathroom/shower, lovely lounge and dining room and fully-equipped kitchen. Can arrange theatre tickets. Contact evenings for brochure: **Mr. Thomas Moore, Telephone: (801) 393-9120, Fax: (801) 393-3024; or P.O. Box 12086, Ogden, Utah 84412 U.S.A.** (10/12)

Equipment Sales, Service

DANSEREAU HEALTH PRODUCTS CLINIC II

California Chair
All electric, auto return. Reversible cushions, choice of 30 colors.
Delivery System
3-Handpiece automatic foot control, air lock arm, stainless steel tray, 3-way syringe, X-ray view box.
Assistants Package
HVE, saliva ejector, 3-way syringe, cuspidor, manual cup filler, quick disconnect, J-box with controls for easy installation.
Light
Chair mounted light, post plate and cup.



Retail $5,325. With Cash Discount $3,995.
We accept Visa & Mastercard.
All prices FOB factory Anaheim.
Manufacturer direct sales for 31 years.

DANSEREAU HEALTH PRODUCTS
559 S. Rose Street
Anaheim, CA 92805
(714) 776-5357
(800) 423-5657 (USA & Canada)
FAX (714) 776-4652 (04/11)

ONTARIO - Wawa: For sale. A Dentsply duo vacuum system. Call (705) 856-2424. (11/12)

Meetings & Announcements

FEBRUARY 20 - 22 1993
2nd ANNUAL WHISTLER DENTAL SEMINAR
Delta Mountain Inn, Whistler, B.C.
For information contact Vancouver Chapter of Alpha Omega Fraternity
Louise Huber (604) 278-9877. (11/01)

Miscellaneous

U.S.A. IMMIGRATION LAW

William Newell Siebert,
Attorney at Law.
307 North Michigan Avenue,
Suite 915, Chicago, Illinois 60601
312-329-0646

Practice limited to U.S. Immigration Law Since 1969 (10/12)

At last you have a better way to access the dental marketplace.
To place your CDA ACCESS AD Call OLA MURPHY at (800) 661-5004 in Toronto, call (416) 278-6700.

Advertisers' Index

Abel Computers 936
A-Dec 875
Ash Temple ..... IFC
Aurum Ceramic 864
B.C. Dental Meeting 942
Beavers Dental 911
Bisco Dental 947
Block Drug 935
Butler ..... OBC
3M Canada 901
L.D. Caulk ..... IBC, 908, 909
CDA Convention Cassettes / ..
Tel-Av 897
CDA DIS 940
CDA Leasing 870
CDA Membership 930, 931
CDAnet 948
CDA RSP 866
CDSPI 882, 917
CFDE 904, 944
Colgate Palmolive 939
ESPE Premier Dental 918
Exan Computers 923
Experdent 950
FDI 949
Goodman & Carr 885
Ho and Associates 899
Hoechst Roussel 868, 896
Hu Friedy 915
MediDent 873
Mercedes Benz 876
Noblepharma 933
Procter & Gamble 928
Quintessence 879
Syntex 924, 925, 943
Teledyne 907
Video Enlightenment 898
Warner Lambert 881

Everything you could wish four in a single glass ionomer.

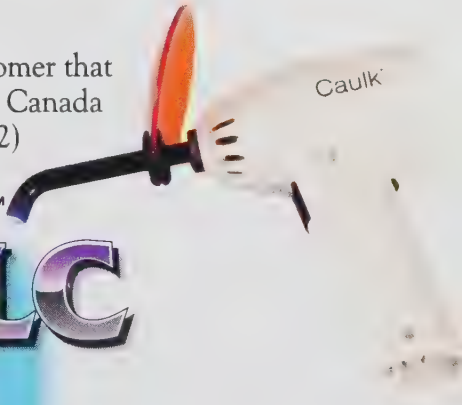
1. 40% more compressive strength than the leading conventional light cured glass ionomer liner.[1,3,4]

2. 32% greater bond strength to dentin and greater diametral tensile strength than traditional glass ionomer base materials.[1,3,4]

3. 43% more compressive strength than the market-leading glass ionomer/silver hybrid core build-up material.[1,2,3,4]

4. Excellent bond strength to dentin —and more shades than—the leading glass ionomer restorative.

Why settle for the ordinary when you can have a light cured glass ionomer that does four things and does them all well? Call your authorized Caulk Canada distributor. Or call 1-800-263-1437. (In Toronto, call 635-7662)



The Extraordinary Glass Ionomer™

Innovations you can put into practice.

VariGlass™ VLC

MULTI-PURPOSE LIGHT CURE GLASS IONOMER

Caulk Canada

Dentsply Caulk Canada Division Dentsply Canada Limited

© 1992 Dentsply International Inc. All Rights Reserved.

1 Peter C. Moon, M.S., Ph.D., David Covey, D.D.S., M.S., Study of the Mechanical Properties of Glass Ionomer Materials, January 1992.
2 J. LoPresti, D.D.S., W. Scherer, D.D.S. et al., Visible Light-Activated Glass Ionomer Cements: A Microleakage and Shear Bond Study, NYU College of Dentistry.
3 Wayne W. Barkmeier, D.D.S., M.S., Laboratory Evaluation of a Visible Light Cured Liner/Restorative Material, Creighton University School of Dentistry, March 1992.
4 Technical Research Facilities, L.D. Caulk, data on file.

Butler

"Get it all with just one call."

The world's most complete line of quality dental health products is just a phone call away

Butler has turned home dental care into a science. Now we provide you with virtually everything your patients will ever need for a lifetime of dental well-being ... all from one convenient source.

Not only do we give you the most complete line, but the new Butler Gold Convenient Shipment Plan makes it even easier for you to buy. Just arrange to purchase $400 of Butler products in one year and you'll get the best price on all products regardless of quantity. Call for details.

Butler GOLD PLAN

ADA PROFESSIONALLY RECOGNIZED American Dental Association

Butler

John O. Butler Company
515 Governors Road • Guelph, Ontario N1K 1C7
Phone: Toll-Free 1 800 265-8353
In Ontario and Quebec: 1 800 265-7177 (except AC 418)
Service en Francais: 1 800 265-7203

Butler G·U·M Toothbrushes • Butler Critter Children's Toothbrushes • Special Use Toothbrushes • Proxabrush Interdental System • Floss • Floss Threaders • Protect Fluorides • Protect Prophy Paste & Trays • Protect Dentin Desensitizer • Red Cote Plaque Disclosants • Home-Care Kits • Protect Desensitizing Gel Dentifrice • Teaching Aids • And many other Home-Care Aids

DEC 22 1992

ecember
-cembre
992

JOURNAL

Canadian Dental Association

L'Association Dentaire Canadienne

undeliverable
Addressee
ETURN TO SENDER
Return Postage
Guaranteed

non livrable
u destinataire
ETOURNER À
'EXPÉDITEUR
ort Payé

▲ SEASON'S GREETINGS!

▲ JOYEUSES FÊTES!

The ideal companion to natural teeth is no longer a fantasy.

Introducing Trublend SLM Anteriors and Posteriors.

Exceptional beauty and remarkable wear resistance are good reasons to prescribe new Trublend SLM teeth. But the big reason is what they can do for your patients. And your practice.

Teeth of a revolutionary material.

Trublend teeth are made of SLM (Sustained Life Material). Created by Dentsply, SLM is 25% more wear-resistant than our own IPN® hardened plastic.[1] It's the perfect solution for your implant cases as well as full and partial dentures.

The natural choice for your patient.

Select from 24 beautiful new shades, each a multi-blend of internal color enveloped in a translucent enamel. Anterior moulds are exact duplicates of attractive natural teeth. Six posterior occlusal designs complete the selection. Giving you the most complete line of artificial teeth we've ever introduced.

An elegant new shade guide.

Our inspiration was an artist's palette. Our object was to communicate quality. The end result: the new Trublend SLM Shade Guide. Contoured to fit your hand, it displays all 24 new shades elegantly.

The guarantee of a lifetime.

You've trusted Trubyte teeth for years. And with good reason. We've always emphasized quality control and product leadership. For new Trublend SLM teeth, we created an outstanding guarantee: *If they fail during the clinical life of the denture, we'll replace them.*[2] So simple but so reassuring to your patients.

Ask your local Dentsply Trubyte dealer for complete information on Trublend SLM teeth, including a free mould chart and patient education aid.

Trubyte®

Trublend™ SLM™

Anteriors and Posteriors

The ideal companion to natural teeth.

Dentsply

Dentsply Canada Ltd., Downsview, Ont. M3J 2Z4

© 1992 Dentsply International Inc. All Rights Reserved.

[1] W.H. Douglas et al., *Journal of Dental Research Special Issue*, No. 425 (July 1992). [2] This guarantee applies only to the teeth. It does not cover the laboratory fee for replacing the teeth.

December 1992

JOURNAL

JOURNAL STAFF

Executive Director
A. Jardine Neilson

Editor
Dr. P. Ralph Crawford

Managing Editor
Terence Davis

Assistant Editor, Art Production
Louise Després Jones

Assistant Editor, Production
Antonia Papadakou

Scientific Editor (English)
Dr. Robert S. Turnbull

Scientific Editor (French)
Dr. Pierre C. Desautels

CONSULTING EDITORS

Anesthesiology
Dr. Earle Young

Dental Materials
Dr. Peter T. Williams

Medicine
Dr. George K.B. Sandor

Forensic Dentistry
Dr. Robert Dorion

Infection Control
Dr. John Hardie

Pharmacology
Dr. David M. Paton

Practice Management
Dr. Bob Brandon

Nutrition
Mrs. Nina Burgess

Canadian Dental Hygienists Association
Ms. Carole Worobey

Canadian Dental Assistants Association
Ms. Diane Pike

SPECIALTY EDITORS

Endodontics
Dr. W.H. (Bill) Christie

Oral Maxillofacial Surgery
Dr. David S. Precious

Oral Pathology
Dr. J.H.P. Main

Orthodontics
Dr. K.E. Glover

Pedodontics
Dr. Victor Legault

Periodontics
Dr. James E. (Jim) Stakiw

Prosthodontics
Dr. Michael MacEntee

Public Health
Dr. Donald Lewis

Radiology
Dr. Colin Price

Published monthly by the Canadian Dental Association at 1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6. Copyright 1982 by the Canadian Dental Association. Authorized as Second Class Mail Registration Number 5384. Postage paid at Ottawa, Ont.

Notice of change of address should be received before the 10th of the month, to become effective the following month.

Subscriptions: All subscriptions payable in advance in Canadian funds. In Canada - $48 (+ GST); United States - $53; all other - $58. Subscriptions are for 12 issues, not necessarily conforming with the calendar year. All statements of opinion and supposed fact are published on the authority of the author who submits them and do not necessarily express the views of the Canadian Dental Association, unless such statements or opinions have been adopted by the Association. The editor reserves the right to edit all copy submitted to the *Journal*. Publication of an advertisement does not necessarily imply that the Canadian Dental Association agrees with or supports the claims therein.

ISSN 0709 8936

PRINTED IN CANADA

Call CDA for information and assistance toll-free at:

1-800-267-6354

CDA FAX Nos: 1-613-523-7736
1-613-523-5891

All matters pertaining to advertising should be directed to:

Keith Health Care Communications
1382 Hurontario Street
Mississauga, Ont. L5G 3H4
ATTN: Trish Sullivan
Advertising Representative,
or, Ola Murphy
CDA Access Representative

Tel: (416) 278-6700
Fax: (416) 278-4850

Member

American Dental Editors' Association
Canadian Circulations Audit Board

CDA MISSION STATEMENT

The Canadian Dental Association is the authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada, — dedicated to meeting member needs, and the promotion and provision of optimal oral health for Canadians.

The Journal of the Canadian Dental Association is published in both official languages except scientific articles which are published in the language in which they are received. Readers may request the Journal in the language of their choice.

CDA EXECUTIVE COUNCIL

President
Dr. B. Dolansky
Ottawa, Ontario

President-Elect
Dr. R. Wenn
Charlottetown, P.E.I.

Vice-President
Dr. B. Sigfstead
Edmonton, Alberta

Dr. J. Brookfield
Kirkland Lake, Ontario

Dr. B. Dolman
Montréal, Québec

Dr. J. Diggens
Vancouver, B.C.

Dr. T. Gushue
St. John 's, Nfld.

Dr. B.E. White
Saskatoon, Saskatchewan

Dr. D. Sandilands
Edmonton, Alberta

CDA STAFF

1815 Alta Vista Drive,
Ottawa, Ontario K1G 3Y6
Telephone (613) 523-1770

EXECUTIVE OFFICE

Executive Director
A. Jardine Neilson

Manager, Executive Services
Sandra Déziel

Coordinator, Board and Executive
Suzanne Burton

PROFESSIONAL SERVICES

Director, Education and Accreditation and Professional Services
Brian Henderson

Associate Director, Education and Accreditation
Susan Matheson

Coordinator, Accreditation
Gay MacQuarrie

Coordinator, DAT
Danuta Askew

Coordinator, Purchaser Information Program
Coordinator, CDAnet
Patricia Duminy

ADMINISTRATION

Director of Administration
Joel R. Neal

Manager, Human Resources
Shelagh Dunlop

Secretary, Membership
Lydia Allison

COMMUNICATIONS

Director of Communications
Linda Teteruck

Librarian
Martha Vaughan

Manager, Membership Services
Carol Anne St. Laurent

Manager, Information Services
Lisa Burke

What's so distinctive about Ash Temple service?

At Ash Temple, we recognize that when you need supplies, or your equipment malfunctions, you can't afford to wait. You need fast, efficient response.

That's why it's good to know you can rely on the people at Ash Temple.

Ash Temple's team of experts is composed of people who combine seasoned experience with the latest knowledge of industry developments.

Our service commitment is a combination of three important elements:

- An outstanding dedication to promptness and efficiency on the part of all our staff from coast-to-coast.
- A distribution infrastructure devoted to providing consistent reliability with high order fill rates unrivalled in Canada.
- An enviable reputation earned over years of service to the Canadian dental profession.

Ash Temple can provide the service you require from within your local community.

Call us. We're there when you need us.

Ash Temple LIMITED

Keeping you a step ahead.

Frank Elborne,
Vancouver Branch Mgr. (retired)
50 years with Ash Temple.

F.C. (Cy) Elborne, President
With Ash Temple 20 years.

The Ash Temple Companies —
Ash Temple Limited, Servident, A-Tech, Microbex Aseptics, Acrylium

ASH TEMPLE SERVICES:

Ash Temple has 14 strategically located, full-service depots —
Halifax
Saint John
Quebec
Montreal
Ottawa
Toronto
Hamilton
London
Winnipeg
Regina
Calgary
Edmonton
Vancouver
Victoria

In addition, there are sales and service staff located in 11 other communities across Canada.

All locations stock over 100,000 consumable items.

Ash Temple can assist you to —
- locate dental practice sites
- search for associates
- secure staff
- design your office
- help in selling your practice

Ash Temple's Equity Program allows you to set up a convenient schedule for delivery of supplies with a variety of payment options, volume discounts and rebate plans.

The annual Ash Temple Equity Grant supports dental associations and dental faculties of Canadian Universities.

JOURNAL
Canadian Dental Association
L'Association Dentaire Canadienne

December 1992 Vol. 58 No. 12

Specialty Features

Allergic reaction to spiramycin 989 E.K.Y. Chiu, MD; H. Maretic, MD; J.M. Wright, MD, PhD, FRCP(C)

Scientific

Factors affecting the future need for dental manpower in Canada and Quebec 1,005 I. Stangel, DMD, FADM

Caractéristiques cliniques affectant le besoin de regarnissage des pièces de prothèses amovibles de classe 1 et 2 à la mandibule 1,015 Lynda Nicholson, DMD, M.Sc.; Fernand Turcotte, MD, MPH, FRCP(C)

Departments

Cover: Winter (Photograph Courtesy of Industry Science and Technology, Canada)

962 Announcements
964 Instructions to Contributors
965 Editorial
967 President's Column
968 News Update
973 Letters to the Editor
974 Library
977 Practice Management & Success
979 Book Reviews
983 Let's Talk
985 The Dental Laboratory and You
991 CDA Convention
1,025 Annual Index
1,034 CDA Access Ads
1,038 Advertisers' Index

Announcements

NATIONAL HIGHLIGHTS

March 4-6, 1993
B.C. Dental Meeting
Vancouver, B.C.
Marilynne Webster
(604) 736-3645

April 28 - May 1, 1993
1993 Canadian Dental Association Annual Dental Meeting (Hosted by ODA)
Toronto, Ontario
See blue pages for more details or call CDA Conventions
1-800-267-6354
(613) 523-1770

May 6-8, 1993
Newfoundland Dental Association Annual Convention
(709) 579-2362

May 16-21, 1993
Les journées dentaires
(514) 875-8511

May 21-22, 1993
New Brunswick Dental Society
(506) 452-8575

May 27-June 1, 1993
Alberta Dental Association Convention
(403) 432-1012

June 24-27, 1993
Annual Convention
College of Dental Surgeons of Saskatchewan
(306) 652-0121

January/Janvier 1993

January 15: The Edmonton and District Dental Society is presenting speaker Covert Bailey "Nutrition, Fitness and Body Fat." For details, contact: Ms. Joyce Weissenborn at (403) 434-2542.

January 21-24: Natick..."Kaleidoscope of Knowledge," 18th Yankee Dental Congress, will be held in Boston, Massachusetts. For information, contact: YDC-18, Massachusetts Dental Society, 83 Speen Street, Natick, MA 01760-4125. Tel: (508) 651-7511.

February/Février 1993

February 10-14: Jamaica Dental Association Annual Convention being held at the Ramada Mallards Hotel, Ocho Rios, Jamaica. For more information, contact: Dr. Louis U. Knight, Chairman, Convention Committee, P.O. Box 19, Kingston 5, Jamaica.

February 13-20: Barbados Dental Association Convention. For more information and pre-registration (limited), contact: Lynne Brandon, CDA, CDR at 85 Lonsdale Dr., London, Ontairo N6G 1T4, or call: (519) 657-4306.

February 16-20: Australian and New Zealand Association of Oral and Maxillofacial Surgeons XVth Biennial Conference, will be held at the Sheraton Southbank, Melbourne, Australia. For more information, contact: Mr. D.W. Wiesenfeld, 766 Elizabeth St., Melbourne, Australia, 3000.

February 18-19: The Edmonton and District Dental Society is presenting Avrom King "Moving Toward an Authentic Dental Practice." For details, contact: Ms. Joyce Weissenborn at (403) 434-2542.

February 20-27: Virgin Islands Dental Association Convention. For more information and pre-registration (limited), contact: Lynne Brandon, CDA, CDR at 85 Lonsdale Dr., London, Ontario N6G 1T4, or call: (519) 657-4306.

February 22-26: "Medicine Update Program for Dentists and Doctors." McMaster University continuing education course is being held at Chateau Lake Louise, Lake Louise, Alberta. For more information, contact: Ms. S. Studd, Continuing Education, Faculty of Health Sciences, McMaster University, Chedoke Campus TB74, 1200 Main St., West Hamilton, Ontario L8N 3Z5. Tel: (416) 521-7966.

March/Mars 1993

March 11: The Edmonton and District Dental Society is presenting Dr. John Nathan "Updates In Pediatric Dentistry for the General Practitioner." For details, contact: Ms. Joyce Weissenborn at (403) 434-2542.

March 11-13: 25th Annual Mid Winter Meeting and Bonspiel (Western Canada Dental Society) in Vancouver, B.C. Interested individual curlers or teams can obtain more information by contacting: Dr. Elgin Duke, Chairman, 10340-134A Street, Suite 206, Surrey, B.C. V3T 4B8. Tel: (604) 585-3177.

March 20-24: 27th Australian Dental Congress in Melbourne, Australia. For more details, contact: National Dental Congress Secretariat, P.O. Box 29, Parkville, Victoria, Australia 3052. Tel: (03) 387-9955.

April/Avril 1993

April 4-7: Conference: Focus on Children - Protecting our Future, jointly sponsored by the Canadian Organization for Victim Assistance and Child Find Alberta, being held at the Calgary Convention Centre. For details, call: (403) 239-2920.

April 15-18: 5th International Congress on Preprosthetic Surgery in Vienna, Austria. For information, contact: G. Watzek, Congress President, Interconvention Austria Center Vienna, A-1450, Vienna, Austria.

April 16-17: Southern Ontario Surgical Orthodontic Study Group will meet in Windsor. For details, contact: Dr. Jeff Berger. Tel: (519) 258-2632, or fax: (519) 258-2637.

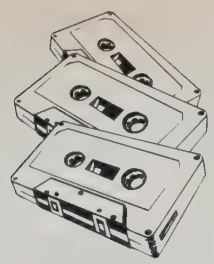
April 19-23: 2ème congrès d'Odonto-stomatologie de Côte d'Ivoire à Abidjan. Pour de plus amples informations, contacter: Le Comité d'organisation, Dr. Adiko Eyholand F., 22 BP 512 Abidjan 22.

April 21-22: 10th International Oral Implant Symposium will be held at the Pan Pacific Hotel in Kuala Lumpur, Malaysia. For more details, contact: AOIA Secretariat, 268 Orchard Road #05-07, Singapore 0923, Republic of Singapore. Tel: (65) 734-3162.

May/Mai 1993

May 1: 20th Reunion of the University of Toronto Class of 73 will be held in Toronto. For details, contact: Dr. Doug Johnston, tel: (416) 813-6008, or fax: (416) 813-6375.

CANADIAN
DENTAL
ASSOCIATION



TEL AV

August 29 - September 2 /du 29 août au 2 septembre 1992

Calgary Alberta / Calgary (Alberta)

ORDER FORM / FORMULAIRE DE COMMANDES

AUDIO CASSETTE ORDERS/ COMMANDES DE CASSETTES AUDIO

Price/Prix: C-90 Cassettes $12 / each 12 $ chacune.

TO ORDER BY MAIL/COMMANDES POSTALES:

Complete this form (please print or type) and mail to :
Veuillez compléter (en lettre moulées ou dactylographier)
et poster le formulaire à:

TELAV INC.
2975 Sartelon, Montreal (Quebec) H4R 1E6

Name/Nom:.....

Company/Compagnie.....

Address/Adresse: ..... Suite #

..... City/Ville Prov. Postal Code/Code Postal

Tel./Tél.: (.....) ..... Total Encl/Incl: $.....

Cheque — Chèque / (Payable to/à TELAV)
Money order enclosed — Mandat de poste inclus. ☐

VISA ☐ MasterCard ☐ Expiry date/Date d'expiration: .....

Number/Numéro:

Signature: .....

Date	Code	Presentations	Quant.	Total
8/29	CDA 1A	**Key Time Management Problems**		
	CDA 1B	— Jennifer de St-Georges		
	CDA 1C	**Taking the Risk out of Risk Taking**		
	CDA 1D	— Jennifer de St-Georges		
	CDA 2A	**Surgical and Prosthetic Implants**		
	CDA 2B	— Dr. Jay R. Friedman and		
	CDA 2C	— Dr. Gary O'Brien		
	CDA 2D			
	CDA 2E			
	CDA 3A	**High Tech Root Canal Flare, File, Fill**		
	CDA 3B	— Dr. Howard Martin		
	CDA 3C			
	CDA 3D			
8/30	CDA 4A	**Esthetic Restorative Dentistry and**		
	CDA 4B	**Materials Update**		
	CDA 4C	— Dr. Terry Donovan		
	CDA 4D			
	CDA 5A	**Surgical and Prosthetic Implants -**		
	CDA 5B	**Hands-on**		
	CDA 5C	— Dr. Jay R. Friedman and		
	CDA 5D	— Dr. Gary O'Brien		
8/31	CDA 6A	**Post-Orthodontic Occlusion**		
	CDA 6B	— Dr. Robert Boyd		
	CDA 7A	**Prevalence, Progression and Etiology of**		
	CDA 7B	**Periodontal Diseases** — Dr. Roy Page		
	CDA 8A	**Home Computers: Opening "Windows"**		
	CDA 8B	— Lauralynn Mealing		
	CDA 9A	**How to Feel, Fill, Thrill Accessory Canals**		
	CDA 9B	— Dr. Donald Yu		
	CDA 10A	**Bonded Restorations for Posterior Teeth -**		
	CDA 10B	**A Comparison of Available Systems** — Dr. Nathan Birnbaum		
	CDA 11A	**Cosmetic Imaging — The Ultimate Communication Tool**		
	CDA 11B	— Dr. Ken Neuman		
	CDA 12A	**Differential Diagnosis of Periodontal Diseases**		
	CDA 12B	— Dr. Roy Page		
	CDA 13	**Mountains of Challenge (CFDE Lecture)** — Sharon Wood		
	CDA 14A	**Les clés du succès en prothèse complète**		
	CDA 14B	— Dr. Claude Lamarche		
	CDA 15A	**Tax, Tips and Traps for Professionals**		
	CDA 15B	— Thomas H. Olson		
	CDA 16A	**Dental Practice Economics**		
	CDA 16B	— Dr. Jack Stockton		
	CDA 17A	**Managing Children's Behavior in the Dental Office**		
	CDA 17B	— Dr. Alan Milnes		
	CDA 18A	**Diagnosis and Treatment of Periodontal Diseases**		
	CDA 18B	— Dr. Roy Page		
	CDA 19A	**Hepatitis B and AIDS Challenges to Infection Control**		
	CDA 19B	— Dr. John Molinari		
	CDA 20A	**CDIP and CDA RSP: Your Best Insurance And Retirement**		
	CDA 20B	**Investment Choice** — Clyde A Harris & Cyril J. Gallant		
9/1	CDA 21A	**Anterior Composite Materials - An Update**		
	CDA 21B	— Dr. Ronald Jordan		
	CDA 22A	**Practice Management for the 90s**		
	CDA 22B	— Anita Jupp		
	CDA 23A	**Nutrition for the Dental Patient**		
	CDA 23B	— Dr. John McDougall		
	CDA 24A	**Prothèse partielle amovible: Conditions actuelles**		
	CDA 24B	— Dr. Claude Lamarche		
	CDA 25A	**Research and Lasers: Clinical Effects**		
	CDA 25B	— Dr. Joel White		
	CDA 26A	**Dentin Bonding Agents - An Update**		
	CDA 26B	— Dr. Ronald Jordan		
	CDA 27A	**Infection Control in a Changing World**		
	CDA 27B	— Dr. John Molinari		
	CDA 28A	**Current Techniques on Resin Bonded Restorations**		
	CDA 28B	— Dr. George W. Tysowsky		
	CDA 29	**Lasers in Endodontics** — Dr. Harold Goodis		
	CDA 30A	**Esthetics and Osseointegration**		
	CDA 30B	— Dr. Steven Lewis		
	CDA 31A	**Redefining the Recall Appointment**		
	CDA 31B	— Annette Linder		
	CDA 32A	**Nutrition in the Cause and Treatment of Disease**		
	CDA 32B	— Dr. John McDougall		
	CDA 33A	**The In-Ceram, all Porcelain Crown and Bridge System**		
	CDA 33B	— Vanik Jinoian		
9/2	CDA 34A	**Hygiene Department Development**		
	CDA 34B	— Annette Linder		
	CDA 35A	**Surgical Management of Oral Pathology**		
	CDA 35B	— Dr. Brian Whitestone		
	CDA 36A	**Coronal radicular Build-Ups — Current Concerns**		
	CDA 36B	— Dr. Terry Morgan		

Price/ C-90 Cassettes _____x $12 =
Prix: C-90 Cassettes _____x 12 $ =

Handling: $1.50 @ cassette up to 6 cassettes _____X $1.50 =

Manutention:1,50 $ @ cassette jusqu'à concurrence de 6 cassettes ____x 1,50 $

Sub Total/Sous Total:

Please add 7% GST to Sub Total
Ajouter la TPS de 7% au Sous Total
(GST/TPS # R105164933)

Quebec residents please add 8% PSTto Sub Total:
Résidents du Québec ajoutez 8% TPS au Sous Total:
(PST/TPS # 10-0203-6904-0001)

TOTAL:

** Please send completed form with payment to: /*
Prière de compléter le formulaire avec le paiement à:

TELAV INC.
2975 Sartelon
MONTREAL
(QUEBEC)
H4R 1E6

Tel.: (514) 856-0455
Fax: (514) 856-0480

Instructions For Contributors

The *Journal* of the Canadian Dental Association welcomes the submission of previously unpublished articles, critical reviews of material on advances in dentistry, and clinical reports for consideration for publication. Material is accepted for publication on the understanding that it is submitted solely to the *Journal* and that it has not previously been submitted elsewhere.

Scientific Articles:

Are contributions dealing with research, diagnosis and treatment of dental disease, studies in education, clinical and laboratory research, and other detailed investigations pertinent to dentistry and related fields. The text should not exceed 2,500 to 3,000 words.

Clinical Reports:

Are brief (up to 2,000 words) reports, case histories and clinical observations. References should be limited and a minimum number of illustrations used.

Opinions:

that are fully documented (800 words or less) will be reviewed for publication at the discretion of the editor.

Manuscript Requirements:

Submit three (3) copies (original and two (2) duplicates) to the Editor, Journal of the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6. All graphs, photographs, charts and tables must also be submitted in triplicate. Authors are asked to submit their articles on computer disks, if possible, stored in Word Perfect, Word Star or ASKE. (IBM compatible programs, i.e. DOS-based, are definitely preferred.) Hard copy, in triplicate, must still be provided for articles submitted on disk. For more details, please contact the editorial staff.

A covering letter designating one author as the correspondent, with his or her full address and telephone number, must accompany the article. All scientific articles are subject to review by selected consultant referees. Acceptance or rejection of an article for publication is based on the referees' reports plus editorial consideration.

The editor reserves the right to edit manuscripts for stylistic consistency, clarity and conciseness. The author named as correspondent will receive a copy of the edited manuscript for checking prior to publication. If the author does not respond promptly, within the time allotted, his or her acceptance of the final article will be assumed. No exceptions will be made.

Manuscript Format:

All material (title, abstract, text, references, tables and legends) should be typed, double-spaced, on one side of 8 1/2" x 11" pages, with margins of at least one inch on all four sides.

Article Titles:

Should be descriptive but concise and suitable for indexing. Lengthy titles will be subject to editing.

Abstract:

Stating the purpose, results and conclusion of the work must accompany all manuscripts. All abstracts will be translated into French (or English, as the case may be). Abstracts should be approximately one typewritten page (250 words in length), maximum.

Authors Affiliations:

The authors' names, degrees, and university affiliations must be provided. Authors are responsible to disclose to the Editor any financial interests they may have in products mentioned in their article.

References:

Should be selective. They must be keyed to the text and numbered consecutively. *Journal* references must give the author's name, article title, abbreviated journal name, volume number, first and last page numbers of article and year of publication, i.e.,

1. Hechter, F.J., Symmetry and dental arch form of orthodontically treated patients. *JCDA* 44:173-184, 1978.

For books, give the author's name, book title, location and name of publisher, and year of publication, i.e.,

2. Kilpatrick, *H.C. Work simplification in dentistry*, ed. 2, Philadelphia, Saunders, 1964.

Illustrations:

Should be of high (professional) quality for reproduction.

All photographs should be submitted in triplicate as glossy black and white or color prints, or as color slides. When color slides are submitted, authors may submit one color slide and two glossy color prints of each illustration rather than three color slides.

On the back of each print or slide, the figure number and the top edge should be indicated lightly using a grease pencil. Each set of photographs and slides should be placed in a separate envelope and marked with the authors' name and the title of the article. Photographs and slides will be kept on file in the *Journal* department for a year following publication. Authors may request return of their illustrations only up until that time. (The editor reserves the right to print color prints or slides in either black and white and/or color, as he sees fit.)

Graphs and line drawings should be of professional quality. The original drawing should be submitted, if possible, or a black and white glossy print of the drawing.

Tables, Charts and Graphs:

Should be well organized to complement the text. They should be keyed by number in order of appearance in the manuscript. Each of these illustrations should be on a separate page with title and footnotes.

Legends:

For all illustrations must be typed (grouped) on a separate page. Photomicrograph legends must specify original magnification and stain.

Most articles are published at no cost to the author, but a fee could be levied if extensive illustrative, formular, tabular or photographic matter is used.

Permissions and Waivers:

Must accompany the manuscript. Waivers are mandatory for the publication of photographs of patients unless faces are masked to prevent identification. Waiver forms are available from the *Journal* of the Canadian Dental Association. Permission of the author and publisher must be obtained for use of previously published material quoted in the text and for use of previously published illustrations.

Reprints:

Twenty-five complimentary reprints are mailed to the corresponding author of Scientific articles after the article is published. Additional reprints of Scientific articles, or reprints of Feature articles are available through the *Journal* for a fee. Additional copies (tear sheets) of articles may be requested 30 days prior to publication. Prices for reprints and copies (tear sheets) are available on request.

Please Note:

Manuscripts that do not conform to the above requirements will be returned to the author. Please read all instructions thoroughly. ■

Editorial

MAGIC DISILLUSION

A headline on the sports' page – "Magic Act Too Scary For NBA" – caught my attention in early November. Of course, the head referred to Magic Johnson's decision to retire from professional basketball, again.

Johnson first retired from basketball at the end of last season, shortly after announcing to the world that he is HIV positive. Nevertheless, he came back to play in the NBA's All-Star Game and at the 1992 Olympic Games. That led him to reverse his retirement decision, and attend training camp for the 1992-93 season. But, because of the concerns expressed by his peers about playing against someone with the AIDS virus, Johnson has now decided to hang up his uniform for good.

Dr. P. Ralph Crawford

It's too bad, really, when the available facts suggest that Johnson's fellow players have nothing to fear. As Dr. Michael Mellman, Johnson's personal physician and the Los Angeles Lakers' team doctor, said: "There was practically no chance of contracting the virus from Johnson through basketball. It's infinitesimally small. We have no numbers that make any sense, because we are talking about such a low-risk situation."

On the same day I read the Magic Johnson story, I received a report from the U.S. General Accounting Office (GAO). The report dealt with the Centers for Disease Control (CDC)'s recent reexamination of the David Acer case. Dr. Acer was the Florida dentist who is believed to have transmitted the AIDs virus to five patients, notably Kimberly Bergalis.

The similarities between the impassioned story on Magic Johnson's retirement and the carefully-phrased wording of GAO's report were remarkable. When it comes to definitive direction with regard to the spread of AIDS in the dental environment, on the basketball court, or in daily life, we just don't have all the answers.

It took almost a year for the Washington, D.C.-based GAO to complete its report on the Acer affair, and it certainly appears to be thorough. But it still leaves Magic Johnson, his fellow basketball players and the entire dental community in the same quandary. Because no one has all the facts about AIDS, there are widespread misperceptions about the disease, and many people have suffered as a result.

In fact, I think that GAO's report on the Acer case would leave even the most sincere and knowledgeable reader immersed in doubt. Consider the sentences that deal with infection sources and mode of transmission:

"...for none of the patients could the possibility of infection from other sources be definitively excluded."

"...whenever research data are labelled, there is always concern about bias entering into data analysis. (This refers to the genetic researchers knowing from where the samples came.)"

"...there is no record that the dentist became injured while treating these patients, however, and neither these patients nor the dentist could recall any such injuries."

"...dental staff, health care workers, patients, and other acquaintances provided no evidence that transmission was intentional."

And GAO's comments on CDC's infection control guidelines, which CDC released following its initial investigation of the Acer case, are even less comforting:

"...because the CDC was unable to determine precisely how the virus was transmitted, the case of the Florida dentist furnishes only sparse information on which to base policy seeking to prevent such occurrences."

"...yet other studies of over 15,000 patients treated by HIV-positive health care workers have thus far failed to demonstrate even a single additional health care worker to patient transmission."

Not surprisingly, the executive summary that accompanies the GAO report does little to provide concrete advice to concerned individuals, associations, agencies, or basketball teams, either:

"...although GAO identified minor problems, CDC's investigation, as a whole, was found to have been both thorough and competent. The evidence GAO reviewed supports CDC's conclusions that five patients became infected while receiving care from a dentist with AIDS and that the mode of transmission remains uncertain. That the mode of transmission remains unknown means that this case provides little specific information to advance our understanding of how to prevent such occurrences in the future...In particular, the investigation of the dental practice failed to show that certain medical procedures are riskier than others in terms of HIV transmission."

Obviously, Magic Johnson, dentists, and the public wouldn't be a great deal wiser about AIDS after reading the GAO report. Despite CDC's exhaustive investigation and GAO's year-long examination of that investigation, there is no new evidence to explain how Dr. Acer transmitted the HIV virus to his patients, or even if this transmission actually occurred.

Who are we to believe when it comes to HIV? The press, the purveyors of infection control materials, the status seekers, the scared? It would seem that the only rational approach is to ensure that we are not unduly influenced by anything other than good common sense and thorough research. At this point in time, there are no "magic" answers. All we know is that dentists should not be influenced by an eager reporter, a terrified patient, a podium-pusher or sales representative when it comes to treating their patients with optimal care.

P. Ralph Crawford, BA, DMD
Editor of the Journal of the Canadian Dental Association

Tantum.
Your partner for fast relief of oral pain and inflammation.[1-3]

Tantum Oral Rinse is a partner you can rely on to give many of your patients prescription relief of oral pain and inflammation.[4] Tantum begins working on contact,[1-3] offering rapid relief that lasts for up to 3 hours.[4] Its topical application is designed to enhance patient compliance. Add clinically proven efficacy,[1-6] and you have the full picture of why Tantum may be an ideal partner for your practice.

Pr **Tantum** Oral rinse TM
(Benzydamine HCl Solution)

Prescription relief of oral pain and inflammation.

Ⓜ Official Mark of the Canadian Olympic Association

MEMBER PMAC PAAB CCPP

Innovation working for you™

3M Pharmaceuticals
3M Canada Inc.
Post Office Box 5757
London, Ontario N6A 4T1

Product Information on page 988

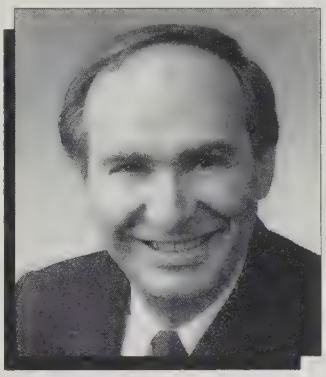
3M

Sponsor 1992 Olympic Games

President's Column

THE WINDS OF CHANGE

Most Canadians, whether they're conscious of it or not, pause at this time of year to reflect on where they are in their lives, where they're going, and what's important to them. The process begins amid the bright colors of fall, on Thanksgiving Day, and continues into the cold, stark days of January, when many of us make, and break, New Year's resolutions.



Dr. Bernard Dolansky

Perhaps it's the change of seasons that causes us to pause for reflection. December brings the winter solstice. It's the month when the days grow shorter and the cold becomes more intense. And for most Canadians, the dark mornings of December bring home the reality that four months of winter lie ahead.

For many of us, this period of reassessment and contemplation takes place amid the paradoxical overindulgence and celebration that occurs at Christmas. For others, the cause for celebration may be Chanukah, but in reality no religious reasons are necessary to explain why Canadians feel a need to indulge in two or three weeks of celebration at this time of year. After all, it's an enjoyable way to fortify ourselves against the long, cold winter to come.

CDA does its contemplation and reflection at the end of October, when the association conducts its annual planning session. This is when the members of our executive council, management committee and senior staff meet to plan CDA's future direction and goals, as well as to discuss the more pressing current issues.

In 1991, much of the planning session was devoted to reviewing and revising CDA's mission statement and goals. Our updated mission statement and goals were then approved by the association's board of governors, and incorporated into our bylaws. I think that it would be useful to restate CDA's new mission statement here, as it was the focal point of our discussions at the 1992 planning session.

"The Canadian Dental Association is the authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada – dedicated to meeting member needs, and the promotion and provision of optimal oral health for Canadians."

This year, the planning session group examined, in detail, every objective and every activity that CDA undertakes to accomplish this mission. We undertook this review to resolve a number of questions related to a single, very important fact. As I made clear in my October column, CDA can no longer afford to deliver a full range of services and programs to all Canadian dentists when one-third of those dentists do not support us with membership.

Simply put, there are dentists in Ontario and Quebec who have declined to accept any financial or professional responsibility for the programs and services that CDA delivers on their behalf. As a result, CDA is faced with declining membership revenues. While we expect new sources of non-dues revenue to replace some of this shortfall, this will not occur for some time. Therefore, CDA has decided to drop some of our programs and services, and put others on hold. We must live within our means.

Fiscal responsibility and downsizing are the watchwords for the '90s. CDA has managed to trim its operating expenditures by over 10 per cent during the last two years. All this was not accomplished without much soul searching, debate and hard work by the dental leadership of CDA, acting in partnership with our staff.

Unfortunately, it now seems that these efforts alone won't be enough to allow CDA to achieve a balanced budget, which is essential to the continued success of our organization. We've reached the point where it has become necessary to pare down the services and programs we deliver to Canadian dentists, and to decide what is truly essential to the promotion and protection of our profession.

I believe that Canadian dentists will pay a price for these program cutbacks down the road, as CDA will be less well-equipped to defend the interests of our members vis à vis government, insurance companies, and the media. The issues that face our profession today, such as taxation, infection control and mercury toxicity, won't go away. New challenges will arise, along with new opportunities, but we will be less well positioned to either face or take advantage of them.

The answer is simple. I ask every dentist who is not a CDA member to contemplate not only where they are this year, and where they're going, but also to reflect on their profession and the national association that nurtures it – CDA. I'm asking you to consider where your interests lie, and to realize that supporting CDA with your membership is a positive step – for both you and your profession. Then join with your colleagues who are already committed to doing their fair share for dentistry. Believe me, it will make you feel good.

I extend my personal best wishes and seasons greetings to all members of the dental "family," and wish us all a healthy, prosperous New Year.

Bernard Dolansky, BA, DDS, MS
President of the Canadian Dental Association

News Update

McGill Dental Faculty Saved

Dr. Ralph Barolet, dean of the faculty of dentistry at McGill University.

In a remarkable turnaround, the academic policy and planning committee (APPC) of McGill University has reversed its earlier recommendation calling for the school's dental faculty to be closed in 1995.

"On October 14, 1992, the Senate of McGill University recognized that the faculty of dentistry had met all of the conditions that had been set forth in order that it be permitted to continue to operate," said Dr. Ralph Barolet, the dean of the dental faculty.

As a result of the APPC recommendation, the dental faculty is now accepting university-level students into its undergraduate program, and cegep (junior college) students into its Dent-P preparatory program. No dental students were accepted into either program last year because of uncertainty over the faculty's future.

That uncertainty began almost a year ago, when McGill's academic policy and planning committee recommended that the mandate of the faculty of dentistry be cancelled. The university's senate endorsed the recommendation, but agreed that the dental faculty would be maintained if it was able to comply with a set of nine conditions, all of which had to be fulfilled by the end of September 1992.

"Not only has the deadline been met, but the faculty's efforts have exceeded expectations," said David Johnson, McGill's principal. "The determination of the faculty to succeed, the commitment of its staff to the welfare of the university, and the generosity of its graduates and friends have all combined to produce this welcome result."

Much of the credit for the turnaround in the dental faculty's fortunes belongs to the Committee to Save the McGill Dental School. Under the leadership of Dr. Norman Miller, the committee went into immediate action following last year's closure announcement. In less than 12 months, it generated overwhelming support for the faculty from both the profession and the public, raising over $1.5 million in gifts and pledges. That money will be used to replace dental equipment that was originally purchased by the faculty in 1955 and updated in 1972.

"The staff of the faculty are very pleased with the outcome, which demonstrated that dentistry can hold its place among the other faculties at McGill University. We would like to acknowledge with gratitude the magnificent support which the community demonstrated during this difficult period," said Dr. Barolet.

In addition to raising funds to purchase new equipment for a 24-chair clinic, the other conditions imposed on the faculty required it to create a new master's program leading to a M.Sc. in dental sciences, and to develop a staff renewal plan. Thirty-five per cent of the faculty's full-time staff have opted for early retirement over the next few years.

"We must, therefore, begin an immediate search for replacement professors who are willing to maintain both a strong commitment to quality teaching and a high research profile, as is expected of all professors at McGill," said Dr. Barolet. "The faculty is committed to increasing its research and scholarly activities significantly in the future." ■

Dalhousie Student Receives Top Honors At CDA/Dentsply Student Clinician Program

Mr. Marco Chiarot of Dalhousie University was awarded first prize at the 22nd annual CDA/Dentsply Student Clinician Program, August 31, for his table-top clinic on: "Stress analysis in amalgam restorations."

The second-place prize was earned by Mr. Charles Kamel of McGill University for his table-top clinic on: "A photoacoustic spectroscopic fourier trans-

Participants and sponsors of the 22nd CDA/Dentsply Student Clinician Program: Seated (l to r), Charles Kamel, McGill University (second place award); Dr. Les Allen, CDA past-president; Antonella Trache, University of Alberta; Mr. Burton C. Borgelt, chairman and CEO of Dentsply International; Rose Kahlon, University of Manitoba; and Anoop Sayal, University of Toronto. Standing (l to r), Robert McCabe, University of Montreal; Rob Strasdin, University of Saskatchewan; Marco Chiarot, Dalhousie University (first place award); Matt Sawchuk, University of Western Ontario; Michael McEachern, University of British Columbia; and Richard Cloutier, Laval University.

ROVAMYCINE® Pr

Spiramycin/Antibiotic

Indications: For the treatment of infections of the respiratory tract, buccal cavity, skin and soft tissues due to susceptible organisms.

Pharmacology: It is active against the following gram-positive organisms: S. aureus (including penicillin resistant strains), beta-hemolytic streptococci, S. viridans, S. faecalis and S. pneumoniae, C. diphtheriae, clostridia.

RHÔNE-POULENC RORER

RHÔNE-POULENC RORER CANADA INC.*
MONTRÉAL
* registered user

Marketed by
HOECHST-ROUSSEL CANADA INC.

PAAB

Product Information on page 980

form infrared study of adhesion to dentin."

Undertaken in conjunction with CDA's 1992 annual dental meeting – held August 29 to September 2 this year in Calgary – the CDA/Dentsply Student Clinicians Program is sponsored by Dentsply Canada, Ltd. through a special grant to the Canadian Fund for Dental Education (CFDE).

This year's program featured 10 table-top clinics, one from each of Canada's dental schools. Each participating student received an all-expense-paid trip to the CDA annual dental meeting after finishing first in his or her school's own student clinician program. ■

Dental Industry Leader Dead

Lt. Col. Charles G. Hunt

The dental community is mourning the passing of Lt. Col. Charles Hunt, who died October 18 in Markham, Ontario. He was 76.

Lt. Col. Hunt began his involvement with dentistry in 1933, as a messenger boy for Ash Temple Ltd, and spent the remainder of his life serving the dental industry and the Canadian Forces.

During the Second World War, Lt. Col. Hunt commanded the No. 2 army dental stores unit that landed in France shortly after D-Day. Following his discharge from the army in 1946, he returned to Ash Temple, where he rose through the ranks to become vice-president, a position he held from 1970 until 1981.

Lt. Col. Hunt left Ash Temple to join Premier Dental in 1981, where he remained until he retired in 1988.

An honorary lieutenant colonel in the Canadian Forces Dental Service (Dental Reserves), "Charlie" Hunt was also president of the Royal Canadian Dental Corps Association. In 1991, the Ontario Dental Association honored Lt. Col. Hunt with the Aileen Durham Award, which recognizes outstanding contributions to dentistry by non-dentists.

Donations in Lt. Col. Hunt's name may be made to either the Charles Hunt Endowment Fund, c/o the Canadian Fund for Dental Education, 1815 Alta Vista Drive, Ottawa, ON K1G 3Y6; or the Heart and Stroke Foundation of Ontario. ■

Research on Relationship Between Weather and Health Planned

Two Toronto researchers want to hear from health professionals across Canada who are interested in the relationship between the weather and health.

Dr. John Bart and meteorologist Denis Bourque are exploring the possibility of establishing a weather information network. If it gets off the ground, the Canadian Medical Meteorology Network will bring together health care professionals, and possibly members of the general public, who are interested in the interaction between meteorology and health. The new organization will establish a library, coordinate cross-country research and publish a members-only newsletter.

Research on the relationship between the weather and health has been conducted for more than 50 years. In the first issue of *Med Net News*, Dr. Bart and Mr. Bourque called the atmosphere a "life-sustaining fluid." The two researchers believe that the atmosphere's presence is "so pervasive that people fail to recognize that they constantly respond to its properties."

For example, blood hemoglobin decreases after hot days and increases after cold days; the metabolism of diabetics is higher during the late spring, summer and early fall, and lower in the winter; and the frequency of asthma increases rapidly after a rapid barometric drop in pressure that is combined with an influx of cold air masses.

For more information on the Canadian Medical Meteorology Network, write to: Dr. John Bart, Bathurst-Steeles Health Centre, 6257 Bathurst St., 2nd Floor, Willowdale, Ontario M2R 2A5. ■

Dr. D.A. Eisner Receives CAO's Distinguished Service Award

Dr. Douglas A. Eisner has received the Canadian Association of Orthodontists (CAO) Distinguished Service Award.

Presented to Dr. Eisner at CAO's 1992 annual meeting, held in Calgary August 28 to 30, the award is the highest honor that the association can bestow on a member. It is awarded in recognition and appreciation of outstanding contributions and exemplary distinguished service rendered for the benefit and advancement of the orthodontic profession.

Dr. Eisner graduated from Dalhousie University's dental faculty in 1955, and received a diploma in orthodontics from the University of Toronto in 1960. A fellow of the Royal College of Dentists of Canada (RCDC), he has been a member of the RCDC council as well as serving as an examiner for the college.

Currently in private practice, Dr. Eisner was on the dental faculty at Dalhousie University, as an assistant professor of orthodontics, from 1978 to 1988. ■

Canadians Participate At International Standards Meeting

Canadian dentistry, as usual, spearheaded the debate on filling and restorative materials at the International Standards Organization (ISO) committee meeting on dentistry, held in Pforzheim, Germany, September 28 to October 3.

Canada has been an active member of ISO's technical committee TC/106 filling and restorative materials for over 20 years, and has held the secretariat of the committee for the past 18 years. In 1992, Canadian dentistry was represented at ISO by Dr. Derek Jones, of Dalhousie University, Halifax, Dr. Dennis Smith, Toronto, and Mrs. Marjory Poirer, Morrisburg, Ontario. Dr. Jones is the current chairman of the Canadian advisory committee to TC/106 and chairman of the Canadian Standards Association technical committee on dentistry.

Thousands of dental materials and devices are imported into Canada each year, or manufactured here, but, contrary to general belief, they are not all necessarily safe to use. One of the purposes of ISO is to ensure that the mate-

INTRODUCING SOLO.™

AN INSTRUMENTATION SYSTEM DESIGNED WITH THE DENTAL SPECIALIST IN MIND.

Setting up a specialist's room requires specific instrumentation. For some, such as periodontists, orthodontists and hygienists, the greatest need is often a low speed handpiece. For others, including endodontists and oral surgeons, a high speed handpiece is frequently the instrument of choice. Unfortunately, specialized equipment for specialized procedures often carries a price tag to match.

A-dec has a solution. Our new Solo™ single handpiece control system gives you all the instrumentation the specialist needs — including saliva ejector, easy-clean HVE and autoclavable syringe. Plus the flexibility of one automatic handpiece control with the capability of high or low speed, wet or dry. All standard.

For added ease, the Solo system is attached to an easy-to-use arm that pivots directly out of the back of our Decade Chair, keeping tubing off the floor and out of the way. Since the entire unit is self-contained in the chair, the need for costly delivery systems is eliminated.

What's more, the Solo system is designed to maintain the instrumentation on a horizontal plane — regardless of the position of the chair's backrest. The entire unit rotates for left- or right-handed dentistry, while providing excellent patient access for two- or four-handed procedures. Team that with an optional A-dec instrument tray as shown here, and you'll find plenty of room to get the job done.

The bottom line? A system tailor-made to your specific needs at a price you can afford. But don't take our word for it. Contact your authorized A-dec dealer today and see why the new A-dec Solo single handpiece control system is just what the specialist ordered.

a-dec®

A-dec, Inc., P.O. Box 111, 2601 Crestview Dr., Newberg, OR 97132 USA, (503) 538-9471, Fax: (503) 538-5911. ©A-dec, Inc., 1992. All rights reserved.

rials used in the health care field meet a minimum standard. Canada's participation in this process is highly valued because of the technical and scientific expertise of its health care providers and researchers.

Among the numerous items discussed at the Pforzheim meeting, which was attended by over 200 dental experts from 16 countries, were a draft of international standards for root canal obturating points; revisions of the standards for dental amalgam and resin-based filling materials; test procedures for evaluating extraorally processed composite materials; and the start of work on a new item dealing with water-based cements.

ISO's 29th annual ISO TC/106 meeting will be hosted by Sweden in 1993, while Canada, as the host country for the 1994 meeting of the Fédération Dentaire International (FDI), has been invited to host the 1994 meeting of ISO's TC/106.

In his role as chairman of the Canadian advisory committee to TC/106, Dr. Jones extended particular thanks to Ash Temple Ltd., which provided financial assistance to the Canadian delegation.

Dr. Jones and Dr. Smith are both members of CDA's committee on dental materials and devices. ■

AIDS Patient's Discrimination Appeal Denied

Ontario's Health Disciplines Board has denied the appeal of a patient with AIDS who complained that a dentist exhibited unprofessional conduct by failing to treat him.

The case was originally heard by the Royal College of Dental Surgeons of Ontario, which concluded that the matter should not be referred to the college's discipline committee.

Under the Ontario Health Disciplines Act, any patient dissatisfied with the decision of a licensing body may ask for the case to be reviewed by the Health Disciplines Board.

In its May 28th decision, the board said that the patient became concerned when his dentist, on learning that the patient had AIDS, wanted to defer cleaning his teeth until the end of the day. However, the dentist was willing to examine the patient in the time period allotted for his original appointment. In his defense, the dentist stated that he had not refused treatment, but merely postponed so that he could obtain updated information concerning the protocol for treating HIV-positive patients.

On examining all the evidence, which included records indicating that the dentist had previously treated AIDS patients, the Health Disciplines Board confirmed the college's original decision that there was no evidence to suggest discrimination on the part of the dentist.

Obituaries

Baker, Dr. Omar C.: Dr. Baker graduated from the Toronto's Royal College of Dental Surgeons in 1923. He was a life member of the Canadian Dental Association. He died March 14, 1991.

Carmichael, Dr. Ian James: Dr. Carmichael graduated from the University of Manitoba in 1981. He practised dentistry in Manitoba.

Evans, Dr. Garth Cameron: Dr. Evans graduated from the University of Alberta in 1944. He joined the army in 1943 and rose to Brigadier-General rank, serving in the Second World Wa and the Korean War. He was a member of the Royal Canadian Dental Corps from 1946-1947. In addition, he was the Directory General of Dental Services and the Queen's Honorary Dental Surgeon from 1970-1974. He died June 1.

Foster, Dr. Kenneth Reid: Dr. Foster graduated from the University of Saskatchewan's dental faculty in 1981. He practised dentistry in Uranium City, Saskatchewan, for one year, and for nine years in Slave Lake, Alberta. He died September 20, 1992.

Gordon, Dr. Kenneth M.: Dr. Gordon graduated from the University of Alberta's dental faculty in 1943. He practised dentistry with the Armed Forces in Edmonton, Alberta, from 1939 to 1945 and was in private practice from 1945 to 1972 in Edmonton, as well. He died September 13, 1992.

Hart, Dr. Daniel Alexander: Dr. Hart graduated from the University of Toronto's dental faculty in 1951. He practised dentistry from his home on Manitoulin Island until shortly before his death on July 25, 1992. He was 73.

Hoe, Dr. Regina Chia-Min: Dr. Hoe graduated from the University of British Columbia's dental faculty in 1980. She practised dentistry in Burnaby, B.C. She died September 28, 1992.

Johnston, Dr. Bruce M.: Dr. Johnston graduated from the University of Toronto's dental faculty in 1936. He practised dentistry in Barrie, Ontario, from 1938-1980, and spent time during this period with the Royal Canadian Dental Corps Service, earning his rank as a major. He was a life member of the Canadian Dental Association. He died June 15, 1992.

McCabe, Dr. C. Aberdeen: Dr. McCabe graduated from McGill University's dental faculty in 1928. He was a life member of the Canadian Dental Association. He died December 28, 1991.

McColl, Dr. T. Duncan: Dr. McColl graduated from the University of Toronto dental faculty in 1939. He practised dentistry in London, Ontario, and was a life-member of the Canadian Dental Association. He died May 22, 1992 at the age of 80.

Miner, Dr. James Albert: Dr. Miner graduated from Dalhousie University's dental faculty in 1978. He practised dentistry in Port Williams, Nova Scotia, where he was also the deacon of Port Williams' Baptist Church. He died October 20, 1992, at the age of 42.

Purdie, Dr. Jack E.: Dr. Purdie graduated from McGill University's dental faculty in 1949. Dr. Purdie practised dentistry in Brandon, Ontario until 1964 when he joined the Manitoba Public Health Services. In 1966 he received a diploma in dental public health from the University of Toronto, and a specialty fellowship from the Royal College of Dentists of Canada in 1976. He retired from Manitoba Public Health Services in 1989. He died September 16, 1992, at the age of 68.

Truemner, Dr. Norman Peter: Dr. Truemner graduated from the Royal College of Dental Surgeons, University of Toronto, in 1917. He practised dentistry in Arthur, Ontario, after serving in the army as a lieutenant with the Canadian Dental Corps until 1919. He continued to practise in Arthur until he retired in 1967, having completed 50 years in dentistry. He died October 11, 1992 at the age of 97.

Wright, Dr. Oliver Morrison: Dr. Wright graduated from the University of Alberta dental faculty in 1940. He practised dentistry in Edmonton for most of his career, in private practice and in the army. He died August 11, 1992 at the age of 78.

Letters

Dental Lab and You

I am writing concerning the "Dental Lab and You" column that appeared in the October 1992 edition of the *CDA Journal*, Vol. 58, No. 10, page 858.

The Ontario Association of Orthodontics has and will continue to be a strong advocate of continuing education for the members of the dental profession. We endorse the practise of including articles of an educational nature in the many journals available today.

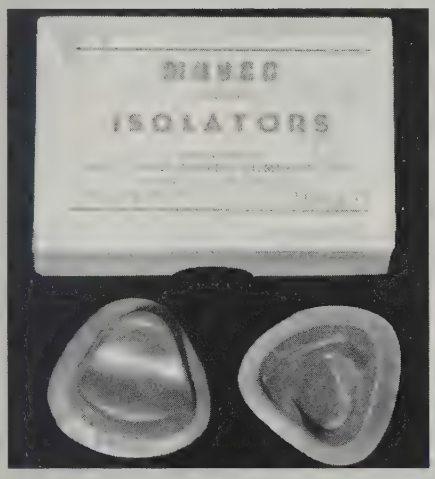
However, we must take exception to this particular article. Dental technicians fabricate appliances following the instructions of the dentist. This article is primarily about treatment and diagnosis, how the appliance works and under what conditions it might be selected. This expertise is beyond the realm of the technician. We have no objection to this type of article being written by a dentist, but we feel that the "Dental Lab and You" column, as it is written by a dental technician, should confine itself to those areas that are the technician's responsibility.

T.G. Shipper B.Sc., DDS
President, Ontario Association of Orthodontists.

Editor's Note

Mea Culpa

What's It
The "Isolator" mystery solved?



Dr. Ron Dickson of Victoria, B.C., writes: "The isolator was the equivalent of our rubber dam...for an isolated tooth. It was more for keeping the excess amalgam from floating down the patient's throat than for keeping the preparation dry. It was punched out to slide over the crown of the tooth and helped to keep the cotton rolls in place. The carved amalgam collected in the open side of the "cup" on lower posterior teeth."

The cure for complex legislation

When you require prompt, reliable advice you can trust, you need a lawyer who believes in the importance of your concerns. Tracey Tremayne-Lloyd is committed to that belief, and to providing you with the level of service you need.

Since being called to the Ontario Bar in 1984, Tracey has concentrated her practice on health law and civil litigation. As the partner in charge of our Health Services Group, she provides assistance with changes in legislation, complaints and discipline, employment problems, malpractice and liability issues, infectious disease, the confidentiality of health care information and other health law-related matters. As a member of your team, Tracey can ensure you receive the service you deserve.

Tracey Tremayne-Lloyd
(416) 597-4088

GC
GOODMAN AND CARR
BARRISTERS AND SOLICITORS

Library/Bibliothèque

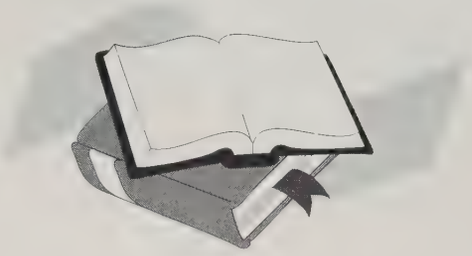
Until February 1, 1993, the following library packages will be available to members at a price of two for $5, plus applicable taxes, a savings of $2.50 per package. (The regular price is $5 per package.)

TO ORDER THESE PACKAGES, CONTACT THE CDA LIBRARY AT: 1-800-267-6354

- ☐ **Chlorhexidine**
- ☐ **Dental Implantation**
- ☐ **Sports Dentistry**
- ☐ **Child Abuse and the Dental Practitioner**
- ☐ **Mercury Update**
- ☐ **Computer Update**
- ☐ **Dental Radiography**
- ☐ **Retirement**
- ☐ **Bonding Agents**
- ☐ **Fluoridation**
- ☐ **Forensic Dentistry**
- ☐ **Drug Use and Drug Interactions**
- ☐ **Ultrasonics**
- ☐ **Gutta-Percha**
- ☐ **Tobacco and Oral Health**
- ☐ **Dentin Sensitivity**
- ☐ **Aphthous Stomatitis**
- ☐ **Practice Building**
- ☐ **Patient Acceptance & Planning of Dental Implants**
- ☐ **Toothbrushes & Dentifrices**
- ☐ **Hepatitis**
- ☐ **TMJ & Craniomandibular Disorders**
- ☐ **Halitosis**

Diagnosing Periodontal Disease

La diagnostique des maladies périodontales



1. Armitage, G.C. "Diagnostic tests for periodontal diseases." *Curr Opin Dent* Mar. 1992; 2:53-62.

2. Bader, H. "The new periodontal diagnostics: commercial applications." *Dent Today* Mar. 1991; 10(2):52-3.

3. Bonner, P. "Advancements usher in new era of periodontal care." *Dent Today* May 1992; 11(4):68, 70.

4. Ciancio, S.G. "Detection and management of the high risk periodontal patient." *Int Dent J* Oct. 1991; 41(5):300-4.

5. Douglass, C.W. and Fox, C.H. "Determining the value of a periodontal diagnostic test." *J Periodontol* Dec. 1991; 62(12):721-30.

6. Douglass, G.L. and others. "Periodontal examination, diagnosis and treatment." *J Calif Dent Assoc* Dec. 1991; 19(12):16-31.

7. Fine, D.H. "Incorporating new technologies in periodontal diagnosis into training programs and patient care: a critical assessment and a plan for the future." *J Periodontol* Apr. 1992; 63(4 Suppl):383-93.

8. Fiorellini, J.P. "New periodontal diagnostic test." *Dent Today* Apr. 1990; 9(3): 36-7.

9. Folkers, S.A. and others. "Periodontal disease in the life stages of women." *Compendium* Oct. 1992; 13(10):852-65.

10. Genco, R.J. "New horizons in periodontics. The challenge for diagnosis." *New York State Dent J* Jun.-Jul. 1992; 58(6):32-6.

11. Goodstone J.M. "Improved devices for evaluating the periodontium." *Periodont Cas Rep* 1990; 12(2):25-6.

12. Greenstein, G. "Advances in periodontal disease diagnosis." *Int J Periodontics Restor Dent* 1990; 10(5):350-75.

13. Greenstein, G. "Clinical and laboratory tests to enhance periodontal diagnosis." *Dent Hygienist News* Winter 1990; 3(1):6, 14.

14. Jeffcoat, M. "Diagnosing periodontal disease." *JADA* Jan. 1991; 122(1):54-9.

15. Kazmierczak, M. and others. "Improved diagnostics: clinical evaluation of a color-coded, polymeric periodontal probe." *Clin Prev Dent* Jul.-Aug. 1992; 14(4):24-8.

16. Kingman, A. and others. "Errors in measuring parameters associated with periodontal health and disease." *J Periodontol* Aug. 1991; 62(8):477-86.

17. Lamster, I.B. and Karabin, S.D. "Periodontal disease activity." *Curr Opin Dent* Mar. 1992; 2:39-52.

18. Lang, N.P. Bragger, U. "Periodontal diagnosis in the 1990s." *J Clin Periodontol* Jul. 1991; 18(6):370-9.

19. Levin, R.P. "A new tool for periodontics." *Dent Econ* Jun. 1992; 82(6):69-70, 72, 74.

20. Listgarten, M.A. "Microbiological testing in the diagnosis of periodontal disease." *J Periodontol* Apr. 1992; 63(4 Suppl):332-7.

21. Loesche, W.J. "Current research in diagnostic methods for assessing periodontal disease and its future impact." *J Canad Dent Assoc* Jul. 1991; 57(7):575-8.

22. Novak, M.J. "Diagnosis of periodontal diseases: reaction paper." *Adv Dent Res* Dec. 1991; 5:37-40.

23. Page, R.C. "Host response tests for diagnosing periodontal diseases." *J Periodontol* Apr. 1992; 63(4 Suppl):356-66.

24. Ranney, R.R. "Diagnosis of periodontal diseases." *Adv Dent Res* Dec. 1991; 5:21-36.

25. Reifeis, P.E. "Periodontal diseases: failure to diagnose and treat." *J Indiana Dent Assoc* Sept. 1990; 69(5):31-2.

26. Schlueter, R.R. and others. "A basic approach to periodontal diagnosis." *Mo Dent J* Jan.-Feb. 1992; 72(1):18-23.

27. Thomas, J. "Perio and practice management: the inextricable link." *J Canad Dent Assoc* Aug. 1992; 58(8):627, 629.

One copy of the above package of articles is available for $5 to all CDA members and for $10 to non-members (plus GST. Ontario residents, please include 8% provincial sales tax.)

Daily: 1-800-267-6354
Envoy: CDN.DENTAL.LIB.
FAX: 613-523-7736

Les membres de l'ADC peuvent obtenir pour 5$ et les non membres pour 10$ une copie des articles de la bibliographie ci-dessus.

Aux heures ordinaires:
1-800-267-6354
Programme informatique
Envoy: CDN.DENTAL.LIB
Bélinogramme:
(613) 523-7736

Find out why dentists have invested $170 million in the CDA RSP

- ✓ *NO commission*
- ✓ *NO closing fee*
- ✓ *NO front end load fee*
- ✓ *NO fee to switch between Funds*
- ✓ *NO hidden fees*

Here are just a few reasons... but there are many more!

The CDA RSP is one of the few RSPs available from a *non-profit organization,* so **you save on fees.** That means more of your money stays where it should be — in your Plan earning interest! You pay only a nominal administration charge to cover our expenses — **less than 1% per year**. Compare this to financial institutions that profit from your RSP by charging commissions, management fees and other fees you may not even know about *until it's too late!*

Shouldn't you get ALL the facts?

To make the right investment decision, it's important to have all the facts on hand. That's why we put together the RSP Fact Kit. It includes a fold-out factsheet highlighting the CDA RSP's performance and features, all in a quick-to-read format without a lot of technical jargon. And, you'll also receive a 10-page booklet, *"Everything you need to know about RSPs"*, a clear and informative guide with a special section to help you chart your finances down the road. *All yours just for asking!*

Our **strong performance record** shows you how the CDA RSP has been successful in helping thousands of dentists multiply their wealth and realize their retirement goals.

CDA RSP 1-10 YEAR PERFORMANCE RECORD
All fees deducted (period ending September 30, 1992)

Type of Fund	1 Year	3 Years	5 Years	10 Years
Bond & Mortgage Fund	14.8	13.0	12.6	12.5
Balanced Fund	10.3	7.1	7.7	12.6
Common Stock Funds	5.1	1.1	3.2	13.2
Money Market Fund	7.1	10.0	10.0	9.7

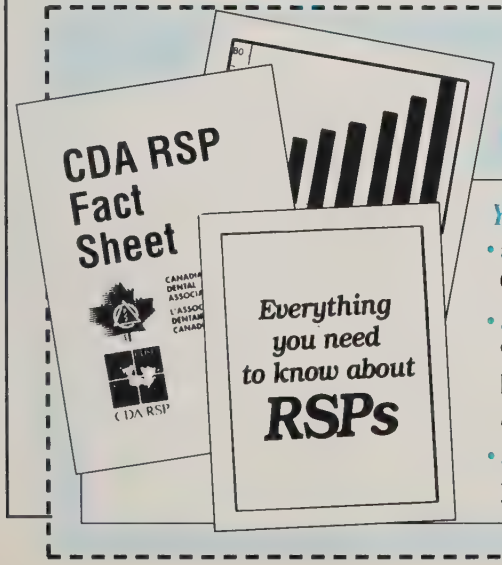
	1 Year	2 Years	3 Years	4 Years	5 Years
GIC Fund(rates in effect November 2, 1992)	6.60	6.60	7.10	7.35	7.85

*Call for your **FREE RSP Fact Kit,** including the bonus booklet **"Everything you need to know about RSPs".***

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

CDA RSP

The investment advantage available only to Canada's dental profession



*FIND OUT WHY THOUSANDS OF INVESTORS **JUST LIKE YOU** CHOOSE THE CDA RSP.*

Call today for your FREE RSP Fact Kit!

YOU'LL RECEIVE:

- a fold-out Factsheet on the CDA RSP, *plus*
- a new, 10-page booklet, **"Everything you need to know about RSPs"**, *including*
- a special section to chart your future finances

*Call **Toll-Free** across Canada*

1-800-561-9401

or in Metro Toronto

1-416-296-9401

(Please direct your enquiry to Extension 252, 253, or 254)

Fax: 1-416-296-8920

It's 1993. Do you know who your patients are?

Who's the new dental consumer sitting in your chair?

Do you know what has changed?

The success of your practice in the 90s depends on your ability to understand and meet the needs of this new dental consumer. Are you ready?

The Canadian Dental Association presents an informative new seminar:

New and Improved: The Canadian Dental Consumer in the 90s

Sponsored by Ash Temple

Invest three hours today for a successful practice tomorrow.

This seminar delivers what you need:

- **Insight** — what is happening to dental consumers and why?
- **Understanding** — how do these changes affect you and your practice?
- **Strategies** — what can and should you be doing?

Plus

- **Your Action Planner**: an instructional workbook full of tips and tools essential for ensuring a secure future.

All presentations are given Friday mornings, 8:30 to 11:30 a.m., in the following cities on the dates indicated:

Ottawa — February 26, 1993

Toronto — March 5, 1993

Vancouver — March 19, 1993

Halifax — March 26, 1993

Montreal — April 16, 1993

New and Improved: The Canadian Dental Consumer in the 90s is presented by Manifest Communications, which has had extensive experience in developing and presenting successful training seminars to dentists.
Presenters: Mark Sarner and Francois Lagarde

Ash Temple LIMITED

This seminar has been made possible through the generous assistance of Ash Temple.

The Canadian Dental Association presents

New and Improved: The Canadian Dental Consumer in the 90s Seminar

This seminar is one in a series that CDA offers in our commitment to the continued professional development of dentists.

Registration Form: Pre-registration is required. Enrolment is limited. Ensure your place in this informative seminar ... Register today!

NAME _____

STREET _____

CITY/TOWN _____ PROVINCE _____

POSTAL CODE _____

TELEPHONE Office ( ) _____ Residence ( ) _____

CDA MEMBERSHIP # _____

SEMINAR LOCATION: _____

		Number	Total
DENTIST	$120/CDA Member		$
	$160/Regular Price		$
AUXILIARY	$ 40/attending with a member dentist		$
	$160/Regular Price		$
TOTAL			$

A tax receipt for the above registration fees will be issued to:

_____

❑ Cheque/Money Order made payable to the Canadian Dental Association is enclosed. Post-dated cheques will not be accepted.

❑ VISA ❑ MASTERCARD Signature _____

Credit Card # _____ Expiry Date _____

Mail registration form and payment to: The Dental Consumer in the 90s Seminar, Membership Services, Canadian Dental Association
1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

Register today! Call CDA toll-free, 1-800-267-6354.

Confirmation of your enrolment will be received by mail. Cancellation policy: Full refund 30 days prior to seminar.

Handle With Care: Staff Dismissals

In the first two articles of this three-part series, I discussed staff hiring and retention. In this final instalment, I'll address the steps to follow when staff are no longer a practice asset, and you have to let them go.

It would be wonderful if dentists, in their role as employers, only had to know how to hire and keep staff. Unfortunately, that blissful scenario does not reflect reality. As employers, you have to know how to hire and fire. No matter how unpleasant it is, or how infrequently it occurs, at some point in your career you'll have to dismiss a staff member. (Although you can reduce the frequency of firing if you follow the suggestions contained in my previous two articles, it would be nothing short of a coup to eliminate it altogether.)

Dismissals become necessary for a number of reasons. You may discover that you hired the wrong person. Their true colors may not have been apparent despite your meticulous screening process. This usually happens early on in the employee/employer relationship. Or perhaps you did hire the right person but, over time, he or she has become the wrong person. Regardless of the reasons behind the dismissal of a staff member, you need not blame yourself – or the employee – for this outcome. You have to accept that firing is sometimes the only way to resolve an unsatisfactory situation, and use the experience as a learning opportunity.

Dubious Employees

It's not uncommon to hear dentists voice displeasure over the conduct of staff. What's common is that they may not take any action to remedy the situation. This holds true particularly in the case of long-serving employees who, although they were once practice assets, have now become liabilities. Even after all attempts to salvage the employee/employer relationship have failed, the dismissal process is often not considered. And it is in cases like these that the process should be brought into play.

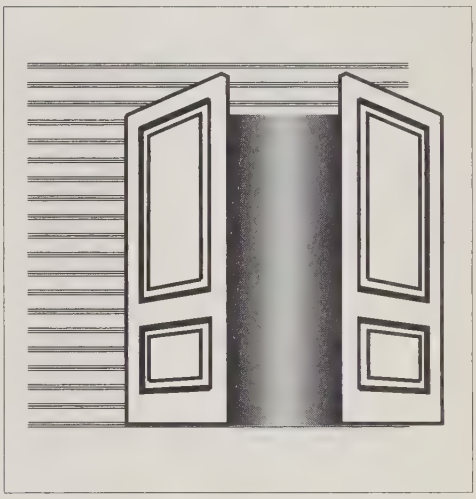
Imtiaz Manji
B.Sc.
President of
ExperDent
Consultants
Inc.

The fact that your office manager, receptionist, assistant or hygienist has been with you from the day you started practising is not reason enough to keep these employees around. Although they may know the daily routine, your patients and the office operations, inside and out, their undesirable traits often offset such benefits. Whether they're resistant to change, repeatedly absent, rude to patients or generally uncooperative, these employees can hamper practice development, practice-patient rapport, and the team's *espirit de corps*. In fact, if their initial enthusiasm and devotion for your practice have waned with time, it can actually be costly to retain them. The catch is this: it can also be costly to dismiss staff if you go about it the wrong way.

Doing It Right

When dentists think of professional risk, nightmarish images of malpractice suits appear. But there's another potential danger lurking in your practice, and it has nothing to do with your patients. The threat is being sued by former employees who claim they've been improperly fired. If you think this is farfetched or unthinkable, consider the fact that employment-related lawsuits account for an ever-increasing number of court battles.

The issue isn't whether you can fire an employee – you can – it's how you go about the dismissal that counts. Even if your reasons for firing a staff member are valid, if you don't handle the dismissal properly you could end up paying compensation to the aggrieved employee.



My advice is threefold. First, get a copy of your provincial employment standards regulations to use as a reference. Second, keep meticulous, written records of any warnings given to employees. Make sure they are seen, acknowledged and signed by your staff. And lastly, before terminating a staff member's employment, seek legal advice. A labor lawyer will be able to tell you whether you have grounds to fire an employee and instruct you on how to conduct the dismissal properly. He or she will pinpoint the details – from the cause of termination, the length of notice of termination, to the appropriate severance pay – thereby allowing you to avoid potential dismissal pitfalls. This consultation should protect the employer (in the event a wrongful dismiss-

al suit is launched), but it can also protect the rights of the employee being dismissed.

Lessening the Pain

It's next to impossible to make a dismissal pleasant. But it's certainly possible to minimize the discomfort and bitterness that usually accompany this action.

Plan your "speech" carefully. Employers often struggle with what to tell employees about why they're being let go. Should they give them the "straight goods," or sugarcoat the reasons for dismissal? Try to strike the balance between two competing needs:

1) to demonstrate to the employee that the firing wasn't arbitrary; and,

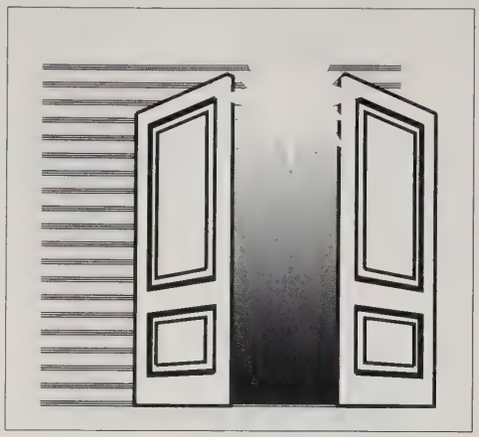
2) to avoid destroying the employee's self-respect.

For example, you can express regret that an employee's performance has not improved since their last review without endlessly dwelling on their inadequacies. Mentioning that they have strengths, but that their qualifications don't suit the practice or their particular job, etc., conveys to the employee that their "failing" is specific. In other words, they could well fit elsewhere. Be instructive and constructive, not destructive.

Time it right. When you've decided that a staff member must go, take prompt action. But be sensitive. Schedule time to inform the employee of your decision at the beginning of the week, preferably at the end of the day. Not only does this minimize their embarrassment, it also allows them to begin looking for new work immediately.

Do the "dirty work" yourself. Don't delegate a dismissal to another team member, even to your office manager. Your staff know that you're ultimately responsible for such key decisions, and they expect to hear major news – be it a promotion or a firing – from you. Delegating dismissal will be cause for further resentment.

Consider helping the employee to find a new position, if that seems appropriate. Assuming that this staff member has not demonstrated gross misconduct, and you can envision them being successful in another role, do your best to assist. You may want to call a placement agency to help them find new employment. Steps like this can go a long way toward cushioning the blow of being dismissed.



What to Tell Patients

Staff turnover certainly affects the remaining members of your team, no question, but remember that patients are also affected. They enjoy seeing long-serving employees, the icons of practice stability. So, if you decide to dismiss an employee who has been with your practice for some time, you should expect some questions about his or her whereabouts from your patients.

Speak to your team about how to handle inquiries in a professional, sensitive manner. The last thing you need is for your receptionist to blurt out that your hygienist was fired after a decade of service. If necessary, explicitly state the verbal skills you would like used.

However you decide to handle it, remember that patients need not – and should not – be told the details of the dismissal. And remember that badmouthing a staff member, be it to patients or other team members, is the ultimate professional faux pas. The idea is to project a positive and professional image of yourself, your team, your practice *and* your dismissed employee.

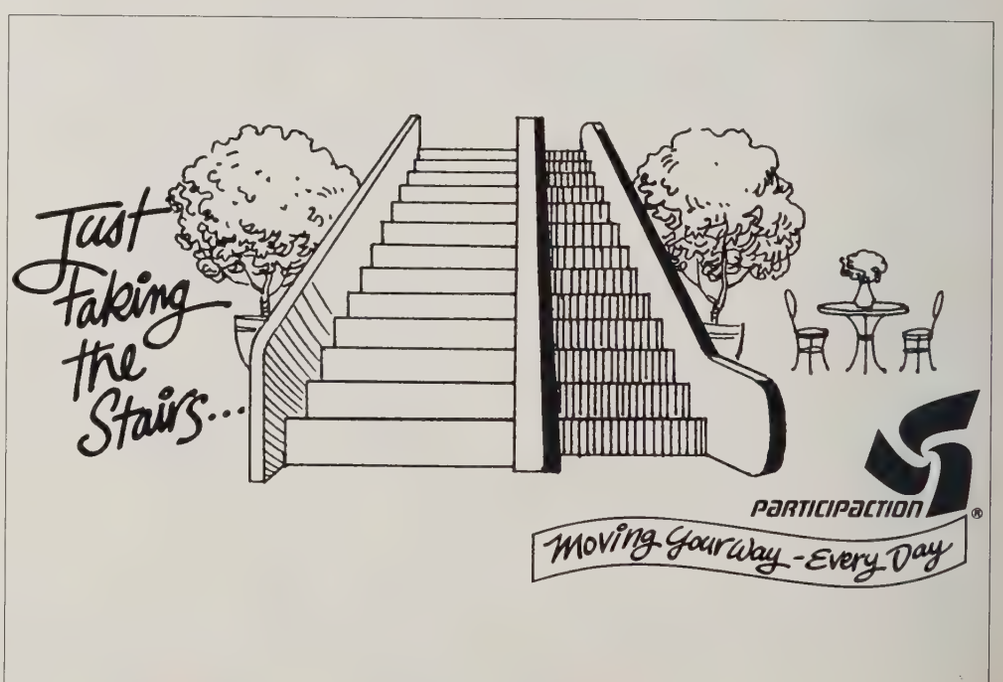
Goodbye Isn't Enough

It may sound strange, but departing staff, regardless of whether they are leaving of their own accord or because they were dismissed, represent a tremendous resource. Anyone who has worked in your practice for a significant period of time has an insider's insight into how it operates. And if they're on their way out, they're likely to be more inclined than your remaining staff to have a frank, open discussion with you.

By becoming all ears, you may gain information about everything from team relations to lingering administrative hurdles. You'll then be able to take the necessary actions (if any are required) to improve your practice in important areas, be it efficiency, patient-staff relations, or working environment. The desired offshoot, of course, is reduced staff turnover.

It's just as important to conduct exit interviews with dismissed staff members as it is to interview employees who are leaving voluntarily. Half an hour spent with an employee who has been terminated will be half an hour well spent if the dividends are clarification and an amicable parting.

So just as you interview candidates before inviting them to join your practice, you should also do exit interviews. By this action, you demonstrate professionalism and fairness to both the departing and the remaining employees.



Book Reviews

Textbook of Clinical Periodontology

by Jan Lindhe

2nd Edition, 1989, Munsgaard, Copenhagen

This text is a revision of the first edition (1984), and is directed at undergraduate and graduate students, as well as practising dentists. The author's intent was to create an analytical and critical text to describe the state of clinical periodontology.

The text is divided into 25 chapters, each beginning with a summary that is also available in the table of contents. Subjects are presented in a sequential manner, beginning with periodontal anatomy and progressing through the etiology of periodontal disease to periodontal treatment and maintenance therapy. In addition, there are chapters that involve the interdisciplinary concerns of prosthetic and orthodontic treatment.

Most of the chapters in this new edition have been revised and updated with current references, and some have been retitled to reflect current terminology. For example, chapters 15, 16 and 17 of the first edition have been combined into one chapter, which includes the objectives, indications and techniques of periodontal surgery. New material is presented in the chapters on antiseptics and antibiotics in periodontal therapy, esthetics, and periodontal therapy.

The author adopts a very traditional approach to periodontology, and in some cases the terminology used in the text may be more suited to a European versus a North American readership. For example, the diagnostic terms periodontitis levis and gravis are not generally used in North America, and appear to be based on the degree of horizontal bone loss, with no consideration being given to vertical or intrabony defects. Similarly, the term periodontitis complicata is used to indicate the presence of angular bony defects and furcation involvements.

The use of the international tooth numbering system (used generally throughout Europe and Canada) may preclude the use of this textbook in dental faculties in the United States, where teeth are numbered from 1 to 32. Furthermore, most charting systems in North America include an odontogram, along with space to record probing depth, recession, furcation involvements and tooth mobility. Even though a specific diagnosis is given for each tooth, the examination chart and the sample written entries presented in the text make it somewhat difficult to gain an overall view of the degree of periodontal disease affecting an entire dentition. In addition, there is no provision for measurements made at a later time (such as at reevaluation appointments) to be entered on the same examination sheet. These measurements could be used to make immediate comparisons of examination data.

The chapter entitled "Periodontal Disease in Children and Young Adults" (previously called "Juvenile Periodontitis") more accurately reflects current terminology, and contains information regarding the clinical and microbial findings in both juvenile and prepubertal periodontal diseases. However, no mention is made of conditions such as Papillon-LeFevre disease or Down's Syndrome, which can occur in conjunction with prepubertal periodontal disease.

A new chapter, "Manifestation of Systemic Disorders in the Periodontium," which provides an overview of the periodontal manifestations of a variety of systemic disorders (or diseases), is badly done. The material presented is of a cursory nature, and includes only the most obvious and common of the systemic disorders that produce signs and symptoms in the oral cavity. It may be more appropriate to either expand or eliminate this chapter altogether, leaving such information to be found in any one of a number of excellent texts of oral pathology, although the use of color photographs would have significantly enhanced this section.

Similarly, instead of including periodontal manifestations and the treatment of patients with HIV symptoms in a single chapter or block of text, the author has covered this topic under a variety of headings. In addition, the inclusion of pregnancy as a systemic disorder is somewhat difficult to accept. Although the condition of pregnancy can produce gingival changes, I am not of the opinion that pregnancy should be considered a systemic disorder, since the medical definition of disorder, according to Dorland's Medical Dictionary, 24th edition, is "a derangement or abnormality of function or a morbid physical or mental state."

The new chapter, "Antiseptics and Antibiotics in Periodontics" is an excellent addition, however. Information has been selected from a variety of sources and is succinct, current and to the point. Since more and more periodontal therapy includes the use of these adjuncts, the addition of this material to the text is very timely.

"Esthetics in Periodontal Therapy," another new chapter, covers pocket elimination procedures to ridge augmentations. The reader benefits from obtaining this information in one chapter, which provides an excellent overview of the topic, along with periodontal considerations for prosthetic and orthodontic treatments.

Despite its shortcomings, this is an excellent textbook. The photographs and diagrams are all of high quality, and in many cases have improved from the first edition. The quality of printing, typesetting and organization is apparent right from the first item, the table of contents. My one reservation is that the index could be improved by providing greater detail under the topic headings.

The material presented reflects current periodontal teaching, and would be valuable as a reference text for any of the targeted groups.

Reviewed by:
Helen G. Scott, DDS, Dip. perio., M.Sc., MRCD
University of British Columbia.

Current Controversies in Orthodontics

by Birte Melsen

1991, Quintessence Publishing Co. Inc., Chicago
314 pages, 538 illustrations, $98 (U.S.)

This book incorporates the work of 15 contributors, whose shared objective was to evaluate 10 selected topics of controversy in orthodontics to differentiate between "traditions, and facts supported through scientific tests."

The field of orthodontics is very broad, covering areas of biology, oral environment, medicine, dental materials and mathematics. In the first chapter, evidence is presented to support the thesis that appearance can shape personality, social behavior and performance.

The clinician's challenge is not simply to improve appearance and function, but also to significantly change the patient's perception of his or her appearance in a positive direction. One must never assume that the patient's perception of his or her appearance is consistent with the orthodontist's evaluation of dentofacial appearance.

The reader is given a list of predictable and unpredictable factors that fall within clinically-useful limits, since it is more difficult to predict individual values than mean values. Following a detailed case analysis, skilled clinicians make highly successful judgements about clinical management for individual patients. The analysis is based partly on a knowledge of prior probabilities for the particular class of individuals to which the patient belongs, but more heavily upon the clinician's prior general experience as a therapist. This area may well become one of the most complex, fascinating and fruitful areas of craniofacial research during the next two decades. The chapter concerning dentofacial morphology and breathing cites an exhaustive area of research. However, more definite answers are still necessary. The reader is reminded that occlusion, malocclusion and craniomandibular function therapy should be performed and finished, while taking the function of craniomandibular muscles and temporomandibular joints into consideration to prevent strain that may lead to functional disorders and pain.

Functional appliances have been used successfully in many forms for specific types of cases. An excellent overview of their development, objectives, and functions, as well as the controversies that relate to them is presented, along with a thorough review of the literature. To ideally use the biomechanical rationale of orthodontic therapy, one must develop three-dimensional goals of tooth positioning after treatment. If these goals are vague or limited, there is no unique solution to an orthodontic problem.

The author also discusses limitations that involve maintaining a healthy periodontium, bone and esthetics through optimal chewing function, thus avoiding intrusion into vertical bony defects and the extrusion of teeth, which results in horizontal bone loss.

Orthognathic surgery has been a great adjunct in clinical orthodontics. The pros and cons of various methods of fixation are discussed for facial fractures and elective orthognathic surgical cases, while eliminating or minimizing temporomandibular joint problems.

Lingual orthodontics is reviewed from its beginning in 1978-79 to present, and a list of some of the benefits and as yet unsolved difficulties is provided.

Most of us agree that clinical orthodontic practice is a combination of art and science, with a continuing increase in the science portion. This book provides excellent reference lists, discussion and objectives in the 10 selected topics. Two additional topics could have been included, however – treatment timing and retention – and some fine tuning in the labelling of the surgery portion of the text would be helpful. Dental practitioners are provided with an up-to-date, scientifically-based information source for future reference and discussion, thereby contributing to "a more informed and scientifically sophisticated clinical profession through exercising a greater degree of healthy scepticism."

This book is indeed challenging and is strongly recommended for students and practitioners in dentistry.

Frank Popovich, DDS, M.Sc.Dent., FRCD(C)
Burlington, Ontario

ROVAMYCINE®

Spiramycin / Antibiotic

PHARMACOLOGY: It is active against the following gram-positive organisms: S. aureus (including penicillin resistant strains), beta-hemolytic streptococci, S. viridans, S. faecalis and S. pneumoniae, C. diphtheriae, clostridia. Except for B. pertussis, H. influenzae (approximately 50% of strains) and neisseria, gram-negative organisms are generally considered as resistant to spiramycin. Bacterial resistance to spiramycin has been reported to develop, including cross resistance between spiramycin and erythromycin. However, most of the erythromycin resistant strains of S. aureus are still sensitive to spiramycin. **INDICATIONS:** For the treatment of infections of the respiratory tract, buccal cavity, skin and soft tissues due to susceptible organisms. N. gonorrhoeae: as an alternate choice of treatment for gonorrhea in patients allergic to the penicillins. Before treatment of gonorrhea, the possibility of concomitant infection due to T. pallidum should be excluded. **CONTRAINDICATIONS:** Hypersensitivity to the drug. The levels of spiramycin attained in the CSF are much lower than those in the blood and are too low to be clinically useful. Therefore, spiramycin must not be used in patients with meningitis. **PRECAUTIONS:** Administer antibiotics, including spiramycin cautiously to any patient who has demonstrated some form of allergy, particularly to drugs. The possibility of superinfection caused by overgrowth of nonsusceptible organisms should be kept in mind during prolonged or repeated therapy. If superinfection occurs, discontinue the drug and take appropriate measures. *Pregnancy:* Safety of this product for use during pregnancy has not been established. **ADVERSE EFFECTS:** Spiramycin has a low toxicity and rarely produces serious adverse effects; these include epigastric pain and abdominal discomfort, nausea, vomiting, diarrhea and skin sensitization. **OVERDOSE: Symptoms:** No case of accidental overdosage has been reported. In oral doses over 4 g/day, abdominal discomfort, nausea or diarrhea may occur. **TREATMENT:** No specific treatment has been proposed. Management should be symptomatic. **DOSAGE:** *Adults:* 6,000,000 to 9,000,000 I.U. (4 to 6 capsules of Rovamycine '500') per 24 hours, in 2 divided doses. In severe infections, the daily dosage may be increased to 12,000,000 to 15,000,000 I.U. (8 to 10 capsules of Rovamycine '500' per day). *Gonorrhea:* 12,000,000 to 13,500,000 I.U. (8 or 9 capsules) in a single dose. *Children:* The usual daily dosage is based on 150,000 I.U./kg body weight in 2 or 3 divided doses; the following calculated dosages are given as a guide (see Table 1). Spiramycin is stable in gastric juices and

TABLE 1

Body weight	Dosage in capsules of Rovamycine '250' (750,000 I.U. Spiramycin/capsule)
15 kg	3 capsules/day
20 kg	4 capsules/day
30 kg	6 capsules/day

absorption is not affected by food. In severe infections, the daily dosage may be increased by one half. In the treatment of beta-hemolytic streptococcal infections, adequate spiramycin dosage should be administered for 10 days. **SUPPLIED: Rovamycine '250':** Each orange and red capsule contains: 750,000 I.U. of spiramycin. Tartrazine-free. Bottles of 50. **Rovamycine '500':** Each grey and red capsule contains: 1,500,000 I.U. of spiramycin. Tartrazine-free. Bottles of 50.

Additional information available from:
Hoechst-Roussel Canada Inc.
Dental Division
4045 Cote Vertu, Montreal, Quebec H4R 2E8
Tel: 1-800-363-1871 FAX: (514) 333-3769

Marketed by
HOECHST-ROUSSEL CANADA INC.

RHÔNE-POULENC RORER

RHÔNE-POULENC RORER CANADA INC.*
MONTREAL
* registered user

PAAB

Unique oscillating counter-rotational brush head motion simultaneously places end-rounded bristles deep between teeth and along the gumline for exceptional plaque removal.

Meets any excuse head on.

The Braun Oral-B Plaque Remover. It's small, round, and cup-shaped, so even the most stubborn patients can effortlessly remove plaque. They'll appreciate the exceptional oscillating motion. The optimum speed. And the soft, polished, end-rounded Oral-B bristles. In fact, our head actually hugs each individual tooth. Designed with the clinical evaluation of

leading dental professionals, the Braun Oral-B Plaque Remover effectively removes plaque. But perhaps just as important, it removes even the most stubborn excuse why a patient can't brush correctly or regularly. For your product brochure, clinical brief, patient education material and dental office pricing, please call Oral-B at 1-800-268-5217.

Oral-B

Braun Oral-B Plaque Remover

BRAUN

ADA

The Braun Oral-B Plaque Remover is Acceptable as an effective cleaning device, which significantly reduces both dental plaque and gingivitis when used as part of a program for good oral hygiene and regular professional care. Council on Dental Materials, Instruments, and Equipment, American Dental Association

BISCO

INTRODUCES

THE 4TH GENERATION

UNIVERSAL ADHESIVE SYSTEM

FEATURING UNIQUE WET (MOIST)* BONDING

ALL-BOND® 2 DUAL CURABLE

ONE BONDING SYSTEM FOR ALL YOUR BONDING NEEDS

The ALL-BOND®2 system bonds to **dentin, enamel, metal** (precious and non-precious) **composite,** and **amalgam**

- Easy to follow instruction cards for all techniques
- Compatible with all composite brands
- Root desensitizing

*WET OR (MOIST) DOES NOT MEAN SALIVA CONTAMINATION

ALL-BOND®

OPAQUER/C&B

Companion kit for metal bonding, crown and bridge cementation

- Five shades of opaquer to attain all Vita Shades

ALSO AVAILABLE

ALL-BOND®

LINER-F

- Fluoride releasing
- Dual curable filled resin
- Amalgam bonding

BISCO THE SOURCE FOR COMPOSITE & ADHESIVE TECHNOLOGY

BISCO

Bisco Dental Products (Canada) Inc.
101-11500 Bridgeport Road
Richmond, B.C. V6X 1T2 1-604-276-8662
1-800-667-8811 (British Columbia, Alberta, Saskatchewan, Manitoba, Quebec)

Clinical Research Dental Supplies and Services Inc.
P.O. Box 28040
London, Ontario
N6H 5E1
1-800-265-3444 (Ontario)

A Farewell Interview with CDSPI's President

Dr. Mel Charendoff will leave behind a legacy of long-standing commitment to the dentists of Canada when he steps down as president of Canadian Dental Service Plans Inc. (CDSPI) in January.

A guiding force during his 17 years on CDSPI's management team, Dr. Charendoff was particularly effective as president of the organization, a position he has held for the past two years. Dr. Charendoff will be succeeded as president by Dr. Rod Moran.

Q: Dr. Charendoff, what were your major objectives when you became President in 1990?

A: At that time, there were several things on the table. One was the renewal of the life and disability insurance contracts. We felt that we were going to renew them through Metropolitan Life. We soon realized this was not going to happen, and we would have to find a better alternative.

Another goal was to strengthen the relationship of CDSPI with CDA and the various provinces.

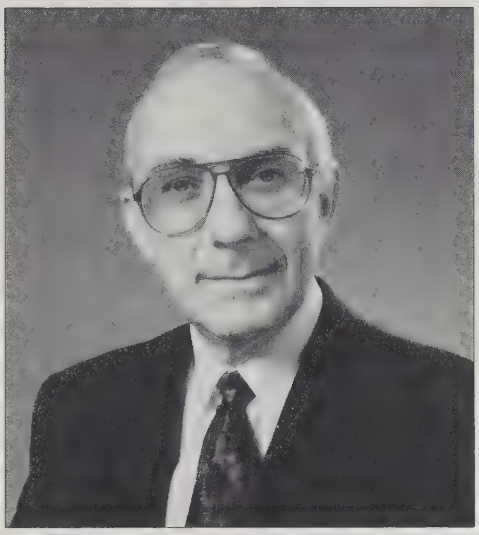
The other situation that had to be addressed was DOMS (CDSPI's Dental Office Management System). The sales goals weren't being reached, so we had to develop a business plan that would allow us to continue on with DOMS or else find another solution.

These were the three major concerns when I came into office, all of which were really full-time jobs.

Q: Would you say these objectives have been met?

A: I believe we've met all of them.

Actually, the last two years have been most gratifying. Although we went through a great deal with the renewal of the life and disability plans, we nonetheless did it successfully. We feel that our new insurer, Prudential, is best suited to look after the plan needs of all the life and disability carriers out there.



Dr. Mel Charendoff

Q: How has CDSPI's relationship with CDA changed?

A: I think that the relationship between the two organizations is at an all-time high. CDSPI and CDA totally understand each other and each other's roles, and are working hand in hand for the benefit of the profession, and that's how it should be.

Q: How do you feel about the solution for DOMS?

A: As far as DOMS is concerned, it worked out beyond our expectations because the changeover literally went without a bump. There was a minimum disruption to all parties concerned – the users, the people who worked in the DOMS department, and CDSPI. It's worked out really, really well, and we'd like to think that we ended up taking care of all the interested parties without hurting anyone, which is no small trick.

Q: What aspect of being president of CDSPI did you like most?

A: I enjoyed being involved, making a contribution to the welfare of my fellow practitioners and making things happen. I've been involved with CDSPI since 1975. I've watched this organization grow from a very small operation to what it is today. I've seen the benefits offered to the profession increase in number to the point where we really and truly do look after all the personal needs of the profession. As well, we do what I feel is a very credible job.

I like the idea of being involved in an organization that is helping the profession – I like being in on the development and being able to see projects go from the formative stages to the point where they are actually benefitting someone.

Q: What changes or challenges to organized dentistry do you see over the next five years?

A: It's hard to say – there's no question that the economy is hurting the profession, in some parts of the country more so than in others. Basically, the profession does not enjoy the good times it had 10 years ago. Somehow or other we're going to have to reconcile poor economic times and still get people to come and spend discretionary income.

That's one challenge. The other challenge is that, because of tough economic times, you have to work on making dentistry affordable. If you don't make things affordable, then people who want them may not be able to handle them. I see the profession having to examine how it does business, and how it can continue to make dental care affordable. There may be things that we have to change, and there may be new things we have to offer. These are some of the problems that we will undoubtedly have to address as a profession.

Q: Are there any other highlights you'd like to mention?

A: I think one project that worked out very well over the years is the CDA RSP. It has grown dramatically, and obviously has the approval of the profession. We went to a great deal of trouble to set up investment parameters which

would act as a safeguard on the investing of our money by the people who do that for us. In this way, we ended up with not the biggest return, but a good return at a low level of risk. Its success is evident from the way the profession has increasingly invested its money in the program. People who participated in the CDA RSP, especially with the flexibility to switch from fund to fund to fund, have probably done quite well.

Q: What about the future of CDSPI? What do you see happening?

A: I see CDSPI continuing to react to the needs of the profession, and being on the leading edge of what the profession wants. That's the beauty of having dentists as part of the management team and on the board of directors of CDSPI. They are people who are in touch with the profession on a daily basis and are aware of what it takes to run a practice. You get ideas like ..."Wouldn't it be nice if we had a,b,c,d and whatever..." and from that comes the direction you should be heading.

CDSPI will continue to offer the benefit packages that dentists need, whether it be insurance or investment, or whatever. To say that we'll only do one or two things is to put a cap on how far you want to reach. If we're willing to continue to reach, then we'll be even better at satisfying the needs of the profession.

Q: Dr. Charendoff, what is on the horizon for yourself, now that you will have more free time?

A: To be truthful, I don't really know exactly what I'm going to do. Maybe people at my age are beginning to think about slowing down – I'm not. I'll have more time to devote to my practice and, who knows, maybe some of the things that I've done over the past 15 years might also come into play.

CDSPI and CDA wish Dr. Charendoff all the best in the future, with heartfelt thanks for all the time and effort that he put into his years on CDSPI's management team.

Dr. Charendoff lives in Toronto with his wife, Janet, who manages the office for his practice. They have three children, including a daughter who is a hygienist and a son who is interning as a dentist at Mount Sinai hospital. ■

Sunscreen Retards Cold Sore Recurrence

A news story in the October 1992 edition of Dentistry Today indicates that a sunscreen application can be a deterrent against recurring cold sores.

A study conducted at the National Institute of Dental Research by Dr. James F. Rooney showed that the application of a sunscreen with a protection factor of 15 can prevent the recurrence of herpes labialis.

According to the study involving 38 patients, the sun's ultraviolet rays trigger the oral herpes and therefore people who suffer from the recurring cold sores should regularly apply the sunscreen to their lips before going out and reapply it often.

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at October 31, 1992	September 30, 1992
Bond & Mortgage Fund	101.47853	100.26253
Common Stock Fund	17.71757	17.90860
Money Market Fund	61.90964	61.80293
Balanced Fund	36.83530	36.68094

G.I.C. Fund Term	*Interest rates as at October 31, 1992	September 30, 1992
1yr	6.60%	4.85%
2yr	6.65%	5.35%
3yr	7.10%	6.10%
4yr	7.35%	6.60%
5yr	7.85%	7.10%

*(*rates subject to change without notice.)*

Total Assets (market value) of the Plan as of

October 31, 1992	September 30, 1992
$167,652,423.20	$168,720,706.80

For further information:

Write:

CDSPI
Retirement Services Dept.
Suite 710
100 Consilium Place
Scarborough, Ontario
M1H 3G8

or phone, toll free:

416-296-9401 Metro Toronto
1-800-561-9401 Service in English
Extensions: 252, 253, 254
1-800-665-9401 Service in French
1-416-296-8920 Fax.

Procera:

A New Concept in Crown and Bridge

Mr. H.J. (Hyo) Maier, RDT

The increasingly common use of implants in dentistry has focused attention on two of the most critical factors in a successful restoration: biocompatibility and precision. With the North American introduction of the Procera® system, the search for these two factors has now moved beyond the actual implant fixtures and connecting components to the framework itself.

Only one metal is used in a Procera reconstruction – commercially-pure titanium. Procera frameworks, crowns and bridges are constructed out of titanium using very unconventional technology, including milling, spark erosion and laser welding. This eliminates any metal compatibility problems between the fixtures and framework. In addition, by eliminating the built-in sources of error that occur in the traditional casting process, clinical studies have shown that Procera crowns, bridges and implant frameworks fit extraordinarily well. The Procera system also provides restorations that are esthetically pleasing.

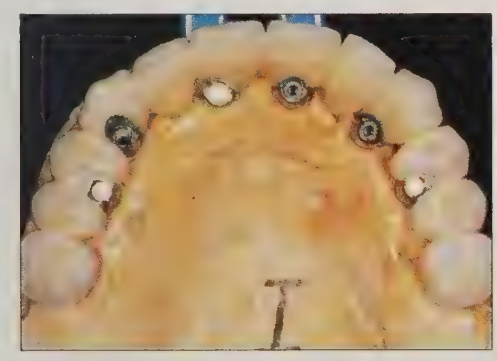


Fig. 2: *Procera Branemark implant case finished with Ti-Ceram porcelain.*

A New Concept in Crown and Bridge

The Procera production process uses a titanium blank and three distinct and unique steps: copy milling, spark erosion and laser welding. Beginning with a conventional impression of the prepared tooth, the laboratory prepares a stone die. Then, using a micromachining process (i.e. copy milling), two or three carbon duplicates are created, based on this die. These duplicates serve as electrodes during the eventual hollowing out of the interior of the actual crown. Copy milling is also used to shape the exterior of a titanium blank into a coping to support

Fig. 1: *Procera Branemark implant framework for edentulous case.*

Fig. 3: *Conventional Procera crown and bridge restoration (labial view).*

ONCE IN A WHILE AN IDEA COMES ALONG THAT'S SO POWERFUL, IT CHANGES THE WAY WE THINK

NEW NON-NARCOTIC

TORADOL

10 mg TABLETS & 30 mg IM INJECTIONS

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

Toradol is a powerful new idea in the treatment of pain: a non-narcotic analgesic with narcotic-strength efficacy.

By class, Toradol belongs to the non-steroidal anti-inflammatory drug (NSAID) family. However, unlike conventional NSAIDs, it is a potent analgesic agent with minimal anti-inflammatory and antipyretic activity. And, it's the first peripherally-acting analgesic to be available in both IM injection and tablet formulations.[1,2]

One Toradol 30 mg IM injection has been proven to be as effective as morphine 12 mg IM and meperidine 100 mg IM.[3-9] And clinical studies have shown that one Toradol 10 mg tablet is more effective than acetaminophen 600 mg + codeine 60 mg (i.e., two tablets of acetaminophen + codeine #3).[10-12]

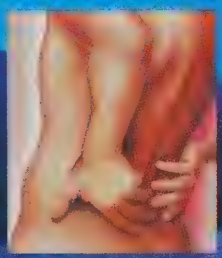
But, because Toradol is non-narcotic,[1] it has a more favourable tolerability profile than morphine, meperidine and acetaminophen-codeine combinations with less nausea, vomiting, drowsiness[10,11,13] and constipation.[1] What's more, Toradol has no narcotic addiction or abuse potential.[14]

Since Toradol is not a controlled substance,[2] there's no need to worry about narcotic control or security procedures. As well, Toradol has no narcotic prescribing restrictions.

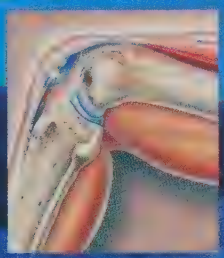
So, for the management of acute, mild to severe pain in your practice, think about Toradol IM and tablets. Narcotic efficacy without narcotic drawbacks.

PROVEN EFFECTIVE IN A WIDE RANGE OF POST-OPERATIVE AND OTHER ACUTE PAIN CONDITIONS

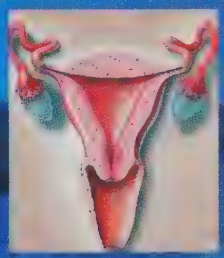
POST-OPERATIVE PAIN[3-8, 15]



LOW BACK PAIN & SCIATICA[16-18]



SPRAIN, STRAIN & FRACTURE PAIN[5, 12, 18-21]



GYNECOLOGICAL PAIN[3-8, 22,23]

POST-DENTAL EXTRACTION PAIN[10, 11]

NEW NON-NARCOTIC

TORADOL®

10mg TABLETS & 30mg IM INJECTIONS (KETOROLAC TROMETHAMINE)

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

Toll-free Toradol Information Hotline 1-800-561-5481

PAAB CCPP

Fig. 4: Completed conventional, single crown Procera restorations (anterior and posterior).

Fig. 5: Completed multi-unit conventional Procera bridge.

the veneering material.

The prepared carbon electrodes are used to precisely hollow out the inside surfaces of the crown through a spark erosion process. The copy-milled coping and electrodes are placed in dielectric fluid in an electro-discharge apparatus. Once in this bath, the electrodes produce a uniform spark that hollows out the coping according to the contours of the copies. This produces a titanium crown with an interior that corresponds perfectly to the model.

After each crown has been shaped on both the interior and the exterior using spark erosion and copy milling, respectively, they must be joined together to form the final bridge framework. However, the unique characteristics of titanium preclude traditional soldering. To meet this need, a new technique was developed – laser welding – which has proven to be the optimal method of creating the final prosthetic framework.

The final veneering was initially accomplished with composites, as dental porcelains did not bond successfully to titanium. While the esthetics were good, the wear factor of the composites did not make this an acceptable long-term solution. Today, a new porcelain (Ti-Ceram) has been developed for veneering the titanium framework, which meets the most demanding long-term esthetic and functional requirements.

This new approach satisfies all of the established requirements for a successful crown and bridge or implant-based restoration: precision, accuracy and the use of biocompatible titanium.

Mr. H.J. (Hyo) Maier, RDT, is president of Aurum Ceramic/Classic Dental Laboratories Ltd.

**Procera is a product of Nobelpharma Canada Inc.*

Oral rinse
Tantum TM
(Benzydamine HCl Solution)

Prescription relief of oral pain and inflammation.

Summary of prescribing information

THERAPEUTIC CLASSIFICATION
Topical Analgesic — Anti-Inflammatory

Action
Animal studies using the parenteral route have shown that "Tantum" Oral Rinse possesses properties of an analgesic—anti-inflammatory agent. This effect is not mediated through the pituitary-adrenal axis. Studies using the topical route have demonstrated the local anesthetic properties of benzydamine hydrochloride. In controlled studies in humans with oro-pharyngeal mucosity due to radiation therapy, "Tantum" Oral Rinse provides relief through reduction of pain and edema. Similar studies in patients with acute sore throat demonstrated relief from pain.

Indications
"Tantum" Oral Rinse is indicated for relief of pain in acute sore throat and for the symptomatic relief of oro-pharyngeal mucositis caused by radiation therapy.

Contraindications
"Tantum" Oral Rinse is contraindicated in subjects with a history of hypersensitivity to any of its components.

Precautions
The use of undiluted "Tantum" Oral Rinse may produce local irritation manifested by burning sensation in patients with mucosal defects. If necessary, it may be diluted (1:1) with lukewarm water. Since "Tantum" Oral Rinse is absorbed from the oral mucosa and excreted mostly unchanged in the urine, a possibility of its systemic action has to be considered in patients with renal impairment.

Use In Pregnancy
The safety of benzydamine HCl has not been established in pregnant patients. Risk to benefit ratio should be established if "Tantum" is to be used in these patients.

Use in Children
Safety and dose directions have not been established for children five years of age and younger.

Adverse Reactions
The most frequent adverse reactions reported are: local numbness (9.7%), local burning or stinging sensation (8.2%), nausea and/or vomiting (2.1%). The least frequent were reports of throat irritation, cough, dryness of the mouth associated with thirst, drowsiness and headache.

Treatment of Overdosage
There are no known cases of overdosage with benzydamine HCl gargle. Since no specific antidote for benzydamine is available, cases of excessive ingestion of the liquid should receive supportive symptomatic treatment aimed at rapid elimination of the drug.

Dosage and Administration
Acute sore throat: Gargle with 15 ml every 1 1/2 to 3 hours keeping in contact with the inflamed mucosa for at least 30 seconds. Expel from the mouth after use.

Radiation Mucositis: Use 15 ml as a gargle or rinse repeated 3-4 times a day, keeping in contact with the inflamed mucosa for at least 30 seconds and then expel from the mouth. Begin "Tantum" Oral Rinse the day prior to initial radiation therapy; continue daily during the treatment and after cessation of radiation until the desired improvement is obtained.

Availability
Tantum Oral Rinse is available in 100 and 250 ml bottles. "Tantum" Oral Rinse is a clear yellow-green liquid containing 0.15% benzydamine hydrochloride in a pleasant-tasting aqueous vehicle with 10% ethanol.

Product monograph is available on request.

References:

1. Simard-Savoie S and Forest D. *Curr Ther Res* 1978;23(6):734-45.
2. Whiteside MW. *Curr Med Res Opin* 1982;8:188-9.
3. Wethington JF. *Clin Ther* 1985;7(5):641-6.
4. Product monograph.
5. Yankell SL. Evaluation of benzydamine HCl in patients with aphthous ulcers. *The Compendium of Continuing Education* 1981; II(1).
6. Epstein JB. *Int J Radiation Oncology Biol Phys* 1989;16(6):1571-5.

PAAB CCPP

3M Pharmaceuticals
3M Canada Inc.
Post Office Box 5757
London, Ontario N6A 4T1

3M

Case Report

Allergic reaction to spiramycin

E.K.Y. Chiu, MD, PhD
H. Maretic, MD
J.M. Wright, MD, PhD, FRCP(C)

Introduction

Spiramycin (Rovamycine), introduced in 1961, is one of the macrolide group of antibiotics derived from the streptomyces fungi. The antibacterial spectra of all macrolides are similar. These drugs are particularly active against gram-positive bacteria, although erythromycin, the best known macrolide in North America, is effective against some gram-negative bacteria as well.[1]

Previous reports indicate that spiramycin achieves high and persistent levels in the tissues of the oral cavity, and has become a drug of choice in the treatment of dental infections.[2-4] More recently, spiramycin is being recommended for the treatment of congenital and acquired toxoplasmosis,[5] and for cryptosporidiosis, a frequent cause of diarrhea in children.[6]

The main adverse effects associated with spiramycin (abdominal pain, nausea, vomiting, and diarrhea) are caused by local gastrointestinal irritation. True allergic reactions have been infrequently reported.

An allergic reaction to a drug is one that is mediated by the immunological system. Such reactions can manifest themselves in many ways, e.g., rashes, angioneurotic edema, fever, asthma, etc. On subsequent exposure, allergic reactions are unpredictable in severity and can occur with very small quantities of the drug. Inhalational and topical exposure to spiramycin powder has been associated with bronchial asthma and contact dermatitis.[7-10] There are 10 published case reports describing a variety of cutaneous allergic reactions to spiramycin taken orally.[11-14] The first case of a serious generalized allergic reaction to spiramycin, prescribed for treatment of a periodontal infection, is presented in this paper.

Case History

A 32-year-old Caucasian man first presented to his dentist for the removal of an embedded chip from a broken tooth. Six days later, he developed a periodontal infection around the broken tooth, for which his dentist prescribed spiramycin (500 mg twice daily). He was not taking any other medications. After two days of spiramycin, the patient developed a fever, shaking chill and generalized myalgia, for which he took acetaminophen-codeine, 300/30 mg, approximately five per day. When general malaise, with hot and cold spells, persisted through the next day, he telephoned his dentist and described the symptoms. After consulting the *Compendium of Pharmaceuticals and Specialties* (CPS), the patient's dentist told him that the symptoms were not related to the spiramycin, and that he should continue taking the antibiotic. A rash appeared that same evening, which became generalized and severe the next day. The patient took the last dose of spiramycin the morning of the fifth day after starting it. Throughout this illness, he was unable to eat solid food, and he complained of pain in his epigastrium. He drank a lot of fluids, but he noticed that he voided in lesser amount and frequency, and that his urine had a "funny" color.

The patient visited our clinic one day after he stopped taking spiramycin. At that time, the systemic symptoms and malaise were subsiding. He had no history of allergies to any medications in the past, and he had no family history of allergic reactions or asthma. On two separate occasions, he had developed diarrhea after taking amoxicillin and penicillin.

On physical examination, the patient was a heavy set, muscular young man. He had an extensive erythematous maculopapular rash, which had a butterfly distribution on his face. The rash covered all parts of his body, but involved primarily the chest and upper extremities. In addition, he had conjunctivitis, and inflammation of the buccal mucous membrane, including the hard and soft palate. The previously

TABLE I

Hematology and Serum Chemistry

Parameter	Normal Range	Unit	Days After Stopping Spiramycin		
			1	3	9
Hemoglobin	140-180	g/L	149	143	146
White blood cells	3,000-11,000	/μL	4,300	4,700	5,800
Neutrophils	2,000-6,000	/μL	1,570	1,316	3,190
Bands	0-700	/μL	1,785	1,810	377
Lymphocytes	1,000-3,500	/μL	495	799	1,566
Total bilrubin	2-23	μmol/L	32.5	34.2	13.7
Alkaline phosphatase	30-110	IU/L	91	169	104
Aspartate aminotransferase	5-47	IU/L	127	67	37
Lactate dehydrogenase	56-194	IU/L	378	309	217

infected tooth was healed. There was no cervical, axillary, or inguinal lymphadenopathy and no hepatomegaly or splenomegaly. The rest of the examination was normal.

Laboratory investigation results are presented in **Table I**. The total white blood cell count is within the normal range. The differential count demonstrates a left shift in neutrophils and lymphocytopenia. Serum chemistry demonstrates liver involvement with an increase in total bilirubin, aspartate aminotransferase, lactate dehydrogenase (LDH), and alkaline phosphatase. The kidneys were also affected. Routine urinalysis showed the presence of four to 10 red blood cells per high power field, trace of protein, positive bilirubin and urobilinogen, and rare granular and hyaline casts. Elevated bilirubin, LDH and reticulocyte count (not shown) in the blood and urobilinogen in the urine also suggests some degree of hemolysis. Both a monotest and a test for nuclear antibodies gave negative results.

Nine days after the last dose of spiramycin, the patient's symptoms had completely resolved, and the urinalysis and most of the abnormal blood tests had returned to normal (see **Table I**).

Discussion

This case most likely represents a generalized allergic reaction to spiramycin. The patient presented with fever, myalgia, general malaise, a maculopapular rash, toxic neutrophil response, evident liver damage, probable hemolytic anemia, microscopic hematuria, and proteinuria. Although we can not absolutely rule out the coincidence of an intercurrent viral illness, the time course of the development and resolution of the illness makes drug allergy by far the most likely explanation. There are two important lessons to be learned by this case. Firstly, the absence of information in the product monograph published in the CPS with regard to the possibility of a generalized allergic reaction and its early manifestations, e.g., fever, led the dentist to wrongly discard that possibility when the patient phoned. There is ample evidence for a risk of a variety of allergic reactions[7-14] to spiramycin to justify including them in the product information. Secondly, the early onset of symptoms in this case suggests that the patient was previously sensitized, even though he denied knowledge of previous exposure to spiramycin or erythromycin. However, it should be noted that spiramycin and tylosin, a chemically-related macrolide, have worldwide use in the livestock and poultry industries.[9] Spiramycin has been detected in chicken eggs in sufficient concentration to cause symptoms in a person allergic to the antibiotic.[7]

Spiramycin has been promoted to be a highly desirable agent in the treatment of chronic suppurative periodontitis and in the control of dental plaque. The rationale for these recommendations is based on the property of spiramycin to be excreted in high concentrations in the saliva, and on the paucity of side effects associated with the drug.[2-4] However, the clinical advantages of spiramycin in relation to other antibiotics in the treatment of periodontal disease has yet to be established.[15]

Allergic reactions to antibiotics are an important consideration in the use of these drugs. It is clear that spiramycin can cause an allergic reaction in a small percentage of patients. The incidence of allergic reactions to erythromycin has been estimated to be from 0.5 to 2.3 per cent.[16] The exact mechanism of these reactions is not known at present.[16] However, there is evidence that an individual who is allergic to one macrolide may cross-react to another macrolide.[9,11] Physicians and dentists should be alerted to this possibility. We are convinced that allergic reactions to spiramycin may be better recognized only with more frequent usage of the drug. If spiramycin should be prescribed more frequently in the treatment of periodontal disease, prescribing dentists should be aware of the potential for severe allergic reactions to the drug, such as the one described in our report.

Dr. Chiu *is a resident in internal medicine, at the University of Saskatchewan.*

Dr. Maretic *is a clinical research associate with the department of pharmacology and therapeutics at the University of British Columbia.*

Dr. Wright *is an associate professor in the department of pharmacology and therapeutics, faculty of medicine, at the University of British Columbia.*

Reprint requests to **Dr. Wright**, *Department of Pharmacology and Therapeutics, Faculty of Medicine, the University of British Columbia, 2176 Health Sciences Mall, Vancouver, B.C. V6T 1Z3.*

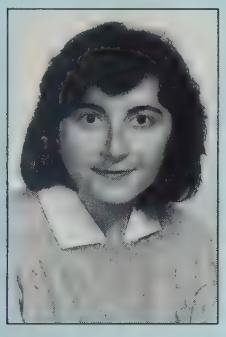
References

1. Bowman, W.C. and Rand, M.J. Macrolide Antibiotics. In: *Textbook of Pharmacology*, 2nd. ed., Vol. 34 (1980), pp. 43-44.
2. Lamy, L., Landry, R-.G. and Roy, S. La Spiramycine. *J Canad Dent Assoc*, 55:393-395, 1989.
3. Harvey, R.F. Clinical impressions of a new antibiotic in periodontics. Spiramycin. *J Canad Dent Assoc*, 27:576-585, 1961.
4. Rozanis, J., Johnson, R.H., Haq, M.S. et al. Spiramycin as a selective dental plaque control agent. *J Penodontal Res* 14:55-64, 1979.
5. Hohfeld, P., Daffos, F., Thulliez, P. et al. Fetal toxoplasmosis: outcome of pregnancy and infant follow-up after in utero treatment. *J Pediatr* 115:765-769, 1989.
6. Abel, C., Cubertafond, S. and Mojon, M. A new etiology of traveler diarrhea in children: Cryptosporidium diarrhea. *Pediatrie* 44:77-81, 1989.
7. Davies, R.J. and Pepys, J. Asthma due to inhaled chemical agents — the macrolide antibiotic Spiramycin. *J Clin Allergy* 1:99-107, 1975.
8. Paggiaro, P.L., Loi, A.M. and Toma, G. Bronchial asthma and dermatitis due to spiramycin in a chick breeder. *J Clin Allergy* 9:571-574,1979.
9. Veien, N.K., Hattel, T., Justesen, O. et al. Occupational contact dermatitis due to spiramycin and/or tylosin among farmers. *Contact Dermatitis* 6:410-413, 1980.
10. Moscato, G., Naldi, L. and Candura, F. Bronchial asthma due to spiramycin and adipic acid. *Clin Allergy* 14:355-361, 1984.
11. Igea, G.M., Quirce, S., De la Hoz, B. et al. Adverse cutaneous reactions due to macrolides. *Ann Allergy* 66:216-218, 1991.
12. Osterle, L.S., Langtry, J.A.A. and Staughton, R.C. Allergy to spiramycin during prophylactic treatment of fetal toxoplasmosis. *BMJ* 302:970, 1991.
13. Allain, H., Pibouin, M., Beneton, C. et al. Results of the last 18 months survey of cutaneous reactions to drugs. *Therapie* 42:311-315, 1987.
14. Gallant, M.C., Rodor, F., and Jouglard. Toxidermie evoquant une vascularite allergique et spiramycine. *Therapie* 42:227-229, 1987.
15. Genco, R.J. Antibiotics in the treatment of human periodontal diseases. *J Periodontol* 52:545-558, 1981.
16. Slater, J.E. Hypersensitivity to macrolide antibiotics. *Ann Allergy* 66:193-195, 1991.

CDA Annual Dental Meeting • Toronto 1993
April 28 – May 1

ANNUAL DENTAL MEETING UPDATE

Let Us Entertain You!



The 1993 Annual Dental Meeting's Social Program will razzle you *and* dazzle you! We're lining up some stunning activities for your enjoyment and we hope you will make plans to take advantage of your stay. This spring experience some of the unique talent the world's "newest great city" has to offer while participating in the 1993 CDA Annual Dental Meeting.

The Canadian Dental Association's traditional Opening Ceremony, is being sponsored, once again, by Ash Temple, and will be held on Thursday, April 29th from 5 p.m. to 7 p.m. at the Metro Toronto Convention Centre. The agenda for this event will feature some of Toronto's best known talent, including the internationally-acclaimed Famous People Players.

Founded in 1974 by Artistic Director Diane Lynn Dupuy, C.M., The Famous People Players is a group of talented young Canadian performers who have dazzled audiences throughout Canada, Bermuda, The People's Republic of China and the United States. Specializing in the "black light" technique, life size fluorescent puppets and props are manipulated under the illumination of ultraviolet light.

Joining the Famous People Players on the program will be the Canadian Children's Opera Chorus and the Caribbana Dance Troupe. We certainly hope you will plan to join us to witness this exciting show geared to the entire family.

Following the 1993 Opening Ceremony, Healthco Canada and the Ontario Dental Nurses and Assistants Association have teamed together to bring you "An Evening At La Cage". Tickets for this evening of 'fun, fantasy and illusion' may be purchased when you register to participate in the CDA's 1993 Annual Dental Meeting. The 'La Cage' social event will include a light meal and a show featuring a spectacular all-star cast with high-powered routines and amazing impersonations.

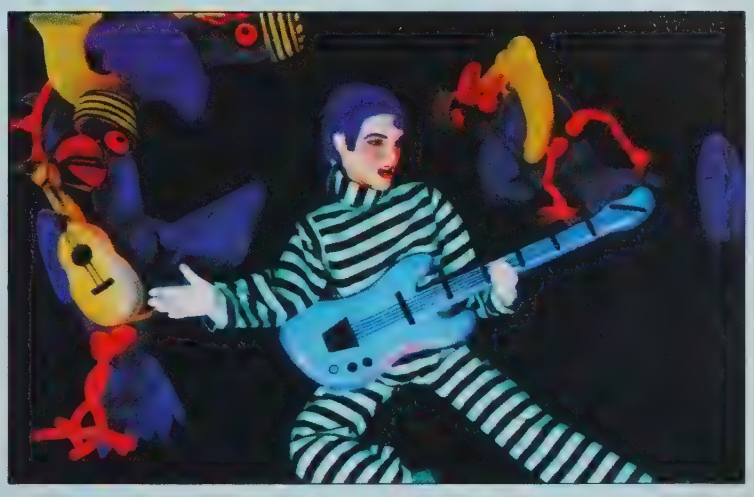
And finally, to ensure the first official evening of the meeting concludes with a 'bang' all delegates registered for the Annual Dental Meeting will be invited to dance 'til dawn to the music of 'Party Lights' at the Metro Toronto Convention Centre. The music will start at about 9 p.m. and everyone is invited to let down their hair and have some fun.

If you're looking for a more formal evening of relaxation and entertainment, make plans to join us at the President's Gala on Friday evening. This year the CDA's gala event offers a unique 'flavor' to all in attendance: "A Cavalcade of Cultures" will focus on the multi-cultural character of the host city, Toronto. You are cordially invited to savour this quality, and to help you do that, an ethnic buffet will be part of the evening's offerings. In addition, plan to dance to the music of Doug Zimmerman and his Orchestra until the wee hours of the morning. Everyone purchasing tickets for this very special evening is encouraged to share in the excitement and dress in traditional ethnic garb. We hope you will plan to join us for a celebration of our differences amidst a gathering of those who share the common thread of being part of the dental community!

As a special treat, convention delegates will also have the opportunity to experience a live full-length theatre performance at Toronto's Elgin Theatre this year. A block of seats has been reserved for CDA delegates interested in seeing "Joseph and the Amazing Technicolor Dreamcoat", a play starring former teen idol, Donny Osmond. You may reserve your tickets when registering to participate in the 1993 CDA Annual Dental Meeting.

The 1993 Convention Committee was determined to create a social program *every* delegate would want to partake in – we hope we have achieved this objective and look forward to welcoming you to many of the meeting's social activities.

Rebecca Yacobi, D.D.S., M.Sc.
Chairperson, Social Program



Toronto's Famous People Players in action.

CDA Annual Dental Meeting – Toronto 1993

Limited Attendance Courses – Wednesday, April 28th

Wednesday, April 28

TERRY DONOVAN, D.D.S.

Los Angeles, California

"Update on Aesthetic Restorative Dentistry"

The contemporary restorative dentist has a host of options with which to help his or her patients. Many of these options are considerably less invasive than many of our conventional restorative therapies. Many patients present for aesthetic restorative treatment, and are becoming increasingly sophisticated in their expectations of the final results. Additionally, manufacturers bring a myriad of new products to the market, often accompanied by a blizzard of information purported to demonstrate the benefits and efficacy of these new products.

This presentation will delineate the procedures essential for success with conventional and contemporary adhesive restorative dentistry. An objective comparative evaluation of many of the newer products on the market will also be given, with an emphasis placed on clinical manipulation of these products.

Topics to be covered will include:

- Essentials for soft tissue aesthetics on fixed prosthodontics.
- Effective gingival displacement.
- New materials and techniques for fabrication of provisional restorations.
- Review of impression materials.
- New techniques with impression materials.
- Solutions for fractured porcelain.
- Metal bonding – mystery & myth.
- Current thoughts on bonding to tooth structure – enamel bonding, dentin bonding.
- Conservative aesthetic techniques: bleaching, enamel microabrasion.
- Bonded porcelain: veneers, crowns, inlays, onlays, use of bonded porcelain in full mouth rehabilitation.
- Essentials for success in fixed prosthodontics.
- Other current topics.

About the clinician:

Terry Donovan received his D.D.S from the University of Alberta in 1967, and practiced full time in Regina, Saskatchewan for 13 years. He received his Certificate in Advanced Prosthodontics from the University of Southern California in 1981. He is currently Chairman of the American Dental Association's Council on Dental Materials, Instruments and Equipment.

Wednesday, April 28 and Thursday, April 29 (a.m. only)

TORSTEN JEMT, D.D.S., Ph.D.

Göteborg, Sweden

"Recent prosthetic advances in osseointegration ad modum Branëmark"

HANDS-ON COURSE

For those not certified in the Branëmark system, this is a certification course. This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branëmark System.

Topics to be addressed will include:

- Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- Review of the scientific background of the Branëmark system including biological considerations, biomechanical aspects and technical engineering aspects.
- Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- Prosthetic treatment planning, patient selection, indications and contraindications.
- A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.
- Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- Discussion of possible complications and how to handle them.
- Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

About the clinician:

Dr. Jemt obtained his D.D.S. in 1975 and specialized in prothodontics in 1982. His Ph.D. thesis was defended at the University of Göteborg in 1984. In 1988 he was made Associate Professor in Prosthodontics. Since 1986 he has been Associate Head of the Branëmark Clinic. Dr. Jemt has presented more than 100 lectures to professional audiences and is the author of over 30 scientific publications. He is currently involved in research on single tooth replacements.

CDA Annual Dental Meeting – Toronto 1993

Limited Attendance Courses – Wednesday, April 28th

Wednesday, April 28

JEFF MILLER &
CHARLOTTE PEER MILLER

London, Ontario

"Enhancing the Career of Dental Reception"

As a result of an extensive needs assessment conducted recently by the Ontario Dental Nurses & Assistants Association, the 1993 CDA Annual Convention will include, on its agenda, a special limited attendance program for dental receptionists. The course is part of the ODN & AA's Network for Career Enhancement program and was created specifically for career dental receptionists to recognize the vital role they play in the delivery of dental health care services.

Using adult education techniques, Jeff Miller and Charlotte Peer Miller will use facilitation techniques to build on prior learning. Together, the participants will share experiences, explore and develop new skills, knowledge and attitudes in their chosen vocation, dental reception.

Topics to be included: communications, recall systems, accounts receivable management/collections, telephone technique, marketing, team and self-development and much more.

This program is designed specifically for continuing education and networking for Canada's dental receptionists.

About the clinicians:

Charlotte Peer Miller is the founding chair of the Committee of the Ontario Certified Dental Receptionists and a co-designer of the Network for Career Enhancement program. As an experienced Certified Dental Assistant and Certified Dental Receptionist, Charlotte is committed to the personal and professional development of the entire dental health care team. Ms. Peer Miller is also a Past President of the ODN & AA.

Jeffrey Miller, as Executive Director, has directed the growth and success of the Ontario Dental Nurses & Assistants Association for the past eight years. His many academic achievements include undergraduate and graduate studies in Science, Business Administration, Marketing, Accounting, Strategic Planning/Management, Communications and Adult Education. Jeffrey is dedicated to bridging the skill gap and facilitates long-range professional development of skills, knowledge and attitude and believes that most people have only scratched the surface of their true potential.

Wednesday, April 28

BURTON PRESS, D.D.S.

Alamo, California

"Secrets of Practice Success"

This presentation is a must for the entire team! Join Burt Press, dentistry's greatest motivator for a revealing look at what makes the winning practices tick. Decide today to take charge of your future – to experience the professional reward you deserve.

How will you ***position*** your practice for tomorrow? What are the verbal and non-verbal techniques of ***communicating for success***? Learn how to ethically promote referrals and build upon recalls. How can the ***winning team*** multiply your efforts?

In today's competitive environment, the ***new patient experience*** is critical in gaining acceptance for total treatment. You'll learn the exact details, and why success is as simple as 1, 2, 3. Focus on a daily technique which increases gross 10% without additional patients. Critically evaluate the profitability of your approach to soft tissue management. You'll be challenged and entertained. You won't fall asleep. You may never be the same!

About the clinician:

Dr. Burton H. Press, Past President of the American Dental Association, is a recognized authority on the management and marketing of dental practices. Dr. Press spent 26 years as the senior member of a California group dental practice before becoming Assistant Dean at the University of the Pacific School of Dentistry, where he is currently adjunct professor. A Fellow of the American and International Colleges of Dentists, Dr. Press is the recipient of an honorary doctorate from Georgetown University and a director of the American Academy of Dental Practice Administration. Thousands of dentists were avid readers of his monthly newsletter, *The Press Report*.

CDA Annual Dental Meeting – Toronto 1993

Limited Attendance Courses – Saturday, May 1st

Saturday, May 1

DONALD YU, B.S., D.M.D., M.Sc.D.
Edmonton, Alberta

"Predictably Successful Endodontics in the 90's"

HANDS-ON COURSE

On Friday, April 30th there will be a two-part lecture series to complement this Hands-on Program. The lectures will be open to all delegates registered for the convention.

The high demand by an informed public for endodontic services demonstrates that general practitioners must be abreast of proven predictably successful endodontic techniques. The rationale and therapeutic end-point of endodontic therapy in relationship with clinical cases will be clarified in social, philosophical and biological viewpoints. This hands-on presentation will enable participants to find, feel, clean and shape the root canal system using the passive envelope of motion of the files and reamers. Participants will experience the proficiency of hermetic obturating with warm gutta-percha in conjunction with sealer into all the portals of exit of the root canal system.

Topics will include:

- Hands-on Schilder's technique on a mounted extracted anterior tooth
- Review of anterior tooth
  - access opening
  - cleaning & shaping
  - packing with warm gutta-percha
- Demonstration on anterior tooth
- Cases review & critique
- Questions & Answers

About the clinician:

Donald Yu is a member of the Canadian Dental Association, Canadian Academy of Endodontics, Royal College of Dentists in Canada, American Association of Endodontists, Alberta Dental Association, Alberta Society of Endodontists, Edmonton and District Dental Society, Edmonton Multidisciplinary Dental Study Club. He is a Fellow of the Academy of General Dentistry and the Academy of Dentistry International. He received his D.M.D. from the University of Pennsylvania and holds a certificate of Advanced Graduate Study in Endodontics, Master of Dental Science in Endodontics from Boston University. He has taught at the University of Alberta and is currently a visiting faculty member of Boston University. He practices full-time endodontics with his two brothers in their Edmonton Endo-Perio office.

The following clinicians will be assisting Dr. Yu during the full-day hands-on program: Dr. Henry Yu, Dr. Jeffrey Grossman, Dr. Zareh Onzounian, Dr. Eric Kwan and Dr. Edwin Levy.

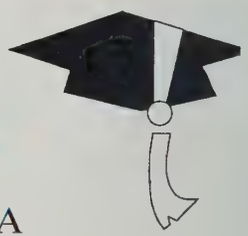
WIN A JEEP!

You could drive home from the 1993 CDA Annual Dental Meeting in a brand-new vehicle.

Aurum Ceramic/Classic, sponsor of the CDA Annual Dental Meeting has once again graciously provided the grand prize for Exhibit Hall attendants.

Each day you visit the 1993 Exhibit Hall, your chances of winning will increase.

CLASS REUNIONS



The 1993 CDA Annual Dental Meeting is the perfect time to renew old acquaintances.

Many dental graduating classes take this opportunity to renew old ties.

If you plan to organize a class reunion, call CDA Conventions at 1-800-267-6354 and our staff will be happy to arrange function rooms and bedrooms for your group.

CDA Annual Dental Meeting – Toronto 1993

Highlights of the 1993 Annual Dental Meeting Program

THURSDAY, APRIL 29TH

ENDODONTICS

STEPHEN BUCHANAN, DDS, FICD
Santa Barbara, California

AM & PM Session: **The Art of Endodontics: Concepts and Techniques for the 90's – Part I and II**

Endodontics has changed radically in the last ten years, often leaving clinicians confused. What are the best irrigants? Where do we set working length? Do apex locators work? Which files are fastest? Safest? Most flexible? Why would anybody forcefully counter-rotate files? What is all this excitement over 3-D obturation? How do you do it?

These two half-day sessions will answer these questions (and many others) as they explore the latest concepts and techniques in endodontics through multi-image slide and video graphics. Computer graphic animations and studio-edited video footage will be used to describe the theories, instruments, and procedures that have come out of the 1980's and are being applied in the early 90's. Attendees will better understand the research and the reasoning behind many of the recent innovations in clinical endodontics, and will be able to immediately begin implementing them in their clinical practices.

The morning session will include discussion of rationale for treatment, diagnosis and pain management. The afternoon session will focus on isolation techniques, access cleaning and shaping and obturating.

NEW TECHNOLOGIES

MARILYN MILLER, DDS, FAGD
Princeton, New Jersey

AM Session: **New Dental Technologies**

Today's advances in dental science carry profound implications for dental health care. In the future, successful dental practices will take advantage of the latest research and developments to attract new patients and provide the best dental care for current patients. Dr. Miller will analyze this dental information and report on new technological advances including lasers, CAD/CAM, intraoral cameras, imaging systems, digital radiography, computerized probes, electrical anesthesia, and microbiological testing, to name just a few. This presentation will enable dental professionals to stay abreast of new scientific findings so that they may provide the best patient care, improve patient communication and plan for future practice growth.

FLUORIDE USE

ERNEST NEWBRUN, DMD, PhD
San Francisco, California

PM Session: **Changing Trends in the use of Fluorides in the Home and in Clinical Practise**

Fluorides, both systemic ingested and topically applied, are the cornerstone of any caries preventive regimen. Most Canadians are exposed to fluoride from more than one source. In this course we will update the participants on the efficacy and safety of communal water fluoridation in the 1990's and discuss the problem of increasing enamel fluorosis and what the clinician and patient can do to decrease the risk of unintentional ingestion of fluoride from therapeutic agents. Safe and sensible use of topical fluoride agents in the office and at home will be placed in perspective in relation to the patient's category of caries risk (i.e., low, moderate or high).

STRESS AND BURNOUT

CHRIS CHRISTIANSON, DDS
Vancouver, British Columbia

Lecture sponsored by **The Ontario Dental Association's Dentists At Risk Committee**

AM Session: **Stress: It's Your Choice**

This presentation will examine the core issues underlying stress as well as effective strategies to modify and prevent it. You will be taken through a practical step-by-step process which can help you identify stress, and its root causes, in your life. A variety of tips helpful in every day stress management will be provided. Most importantly you will be introduced to a strategy – a "map" for effective self-management – that will make it possible to live with very little distress. The often elusive peace of mind, serenity and fulfilment can be yours.

PM Session: **Burnout – A "Bottom-Line" Problem**

What is burnout? Who gets it? How does it happen? Does dentistry do it to us? These important questions will be addressed. The predisposing factors and the process of burnout will be examined. You will learn to identify the warning signs along the road to burnout, as well as the processes that can render you unaware of these signs. "How to" information on prevention and intervention through effective self-management will be presented.

PERIODONTICS

SALME LAVIGNE, RDH, MS
Wichita, Kansas

AM Session: **What do you do When Your Patient has an Implant?**

This presentation will focus on both professional and home care regimens for a variety of implant systems including the latest research findings on implant maintenance. A discussion of probing, irrigation, home care products and instrumentation will be some of the highlights of this seminar. Also included is a thorough review of the various types of implant systems which you may encounter in practice and an overview of how these systems are placed.

PM Session: **Periodontal Diagnostics**

The recognition and early identification of periodontal disease has become one of the major challenges of the 90's. With so many new diagnostic systems available on the market, how will you choose which ones meet your patients' needs? This seminar focuses on a variety of clinical microbiological and immunological diagnostic aids which are currently available for dental office use including several new rapid chairside systems.

DENTAL MATERIALS

ALAN BOGHOSIAN, DDS
Chicago, Illinois

AM & PM Session: **Contemporary Dental Materials and their Clinical Application – Parts I & II**

The rapid evolution of dental materials and new techniques has enabled the clinician to restore the compromised dentition with unsurpassed performance; both functionally and aesthetically. This two-part presentation will review dental materials and techniques in prosthodontic and adhesive material applications. This session will review elastomeric impression materials, concepts of tooth preparation, temporization and tray selection. A variety of impression techniques will also be presented.

CDA Annual Meeting – Toronto 1993

Highlights of the 1993 Annual Dental Meeting Program

THURSDAY, APRIL 29TH (continued)

GERIATRIC DENTISTRY

LINDA NIESSEN, DMD, MPH
Dallas, Texas

AM Session: **Will you Still Need Me?**
Will You Still Treat Me – When I'm 64?

Senior citizens are now healthier, wealthier and more dentate than ever before. This program presents an overview of the issues of gerontology and geriatric medicine that are especially relevant to caring for an older population. As the population ages, the patterns of oral disease are also changing.

This program addresses the diagnosis, treatment and prevention of oral diseases commonly seen in older adults. The program reviews the common medical conditions and medications seen in older adults and discusses their effects on the patient's oral health.

PM Session: **Oral Health and Aging:**
Prevention isn't Just for Kids

Aging is no longer synonymous with tooth loss in today's society. Older adults are living longer and healthier lives. And their expectations about oral health are changing. Teeth were designed to last a lifetime and older adults are willing to work to maintain their oral health.

This program discusses the changing concepts of prevention for older adults. The program addresses risk assessment for various oral diseases and identifies effective preventive strategies. The program will review new products and technologies available to maintain oral health for a lifetime.

FLUORIDES

CHRISTOPHER CLARK, DDS, MPH
Vancouver, British Columbia

Lecture sponsored by **Procter & Gamble**

AM Session: **The Appropriate Use of Fluorides in the 90's**

Fluorides have been responsible, to a great extent, for the improved oral health of Canadians, and have consequently been the source of great pride for the dental profession. Most of the fluoride technologies were developed in the 50's and 60's, however, and it is time for some fine-tuning. This presentation will detail the new recommendations concerning the use of fluorides that resulted from the Canadian Workshop on Fluorides that met in Toronto in April of 1992. The scientific explanations of why these changes were made, and what they mean in terms of caries prevention will be discussed. An opportunity for questions and more in-depth discussion will also be incorporated.

PM Session: **Prevention of Oral Diseases in the 1990's**

This session will pick up where the first left off. Topics that have not been addressed will be covered in their entirety. Additional topics will include the factors for use in the assessment of risk to dental caries, and indications and appropriate use of pit and fissured sealants in the 90's. A discussion of the uses of chlorhexidine will also be provided.

RESTORATIVE DENTISTRY

KARL LEINFELDER, DDS, MS
Birmingham, Alabama

Lecture sponsored by **Wright Dental**

AM & PM Session: **Current Developments in Restorative Materials and Techniques**

On the basis of laboratory studies, many new claims relating to significant changes in properties and performance have been made in dental materials. Unfortunately, few well-controlled clinical studies have been completed to confirm these claims.

Aesthetic restorative materials are among those which have changed most markedly. In this presentation, the clinician will discuss the clinical performance of these materials and indicate their uses in private practice. Particular emphasis will be placed on the clinical evaluation of the new dentin adhesives, anterior/posterior composite resins, and ceramic and heat-cured resin inlays/onlays, and the CAD/CAM system. This course is designed to offer guidelines on selection and use of currently available materials as well as recommended clinical techniques.

PAEDIATRIC DENTISTRY

MARVIN BERMAN, DDS
Chicago, Illinois

AM Session: **Reluctant Children and the Dental Team ... Let's Have a Party!**

Many dentists dread the arrival of very young patients, often because they lack mental preparedness. Yet children are the building blocks of a vital practice. The key to the successful management of children is not medications, nitrous oxide or restraints. Dr. Berman, with the help of exciting videotapes of patient visits, will vividly demonstrate his direct, no-nonsense but loving approach to dealing with even the most obstinate child in an effort to provide a positive experience for everyone. The issues of fearful parents, local anesthetic, the roles other dental staff play and even financial considerations will be addressed.

PM Session: **Creative Paediatric Dentistry ... Marvin's Garden of Tricks!**

It is the dentist's obligation to provide quality dentistry for children, even under less than ideal conditions. Sometimes it is necessary to modify our techniques in order to work within a child's capabilities and attitudes. Using videotapes, Dr. Berman will cover an array of situations such as bite-wing x-rays, closed mouth, baby bottle syndrome, pulpctomies and especially the dreaded shot. His innovative and unique tricks of the trade are designed to make difficult tasks easier for the dentist and the patient ... child or adult. Come and enjoy an educational experience that will have an immediate impact on your practice if you have an adventurous spirit, an open mind and if ... you love children.

CDA Annual Dental Meeting – Toronto 1993

Highlights of the 1993 Annual Dental Meeting Program

THURSDAY, APRIL 29TH (continued)

PREVENTIVE DENTISTRY

THOMAS TRUHE, DDS
Princeton, New Jersey

PM Session: **The State of the Profession and Prevention Revisited**

The most successful dental practice of today – and tomorrow – is best described by the old adage, "prevention pays". All too often, however, many of the benefits derived from the latest oral health research are not translated into advise that is meaningful to dental patients. The prevention message for achieving a cavity-free generation, as well as keeping teeth for a lifetime, is "new and improved". A preventive message, firmly grounded in science, but at the same time concise, straightforward, practical and affordable, is addressed in this presentation. The latest developments in fluoride products, cariostatic mechanisms of fluoride, diet and dental caries, sealants and other prevention modalities will be discussed. Dr. Truhe will also take an in-depth look at the "state of the dental profession" in both Canada and the United States.

FRIDAY, APRIL 30TH

ENDODONTICS

(prerequisite for Saturday Hands-on Course)

DONALD YU, DMD, MScD
Edmonton, Alberta

AM & PM Session: **Predictably Successful Endodontics in the 90's**

Overhead increases, tax increases, increased competition, too many dentists, staffing difficulties, lawsuit increases, malpractice premium increases and economic uncertainty. It's tough! Dentistry isn't easy! You must find the best technique that can give you predictably successful results. You must broaden your dental horizon of practice. You must raise your horizon of reward for all your hard work. In short, you must keep your leading edge of the state of the art of current endodontics which can be more enjoyable. The ultimate treat of this program will be case discussion.

PREVENTIVE DENTISTRY

ERNEST NEWBRUN, DMD, PhD
San Francisco, California

AM Session: **Diagnosis and Management of the Caries Risk Status of Patients**

Probably the most important and difficult diagnostic decision for the clinician is whether the patient is at high, moderate or low risk of caries. Consideration of various factors in the patient's history, and clinical and laboratory examinations will assist in this classification of risk. Since caries has a multifactorial etiology, strategies of prevention can be directed at the resistance of the host or teeth, at the substrate, and/or at the microflora.

DENTAL MATERIALS

JAMES SANDRIK, PhD
Maywood, Illinois

AM Session: **Applications and Review of Dental Materials: Impression Materials and Cements**

Despite years of active research in dental materials there does not appear to be an ideal impression material nor cement that can be effectively used for universal dental procedures, hence the need to keep abreast of the several types of materials available.

This session will concentrate on the development and state of the art of elastomeric impression materials. A brief historical review will begin with polysulfide (rubberbase) and continue through the latest available materials. The presentation will be suitable for both dentists and staff who play an important role in controlling quality in the dental office.

PM Session: **Applications and Review of Dental Materials: Composite Resin Restorative and Related Materials**

Nearly 25 years have passed since the introduction of the first composite restorative material. Those who have witnessed the development of this interesting material will certainly agree that materials and techniques of today bear only a slight resemblance to those pioneer products of the late 1960's. A brief historical review will be presented to kindle an appreciation of the development, and problems that hindered the progress of composites.

GERIATRIC DENTISTRY

RON ETTINGER, MDS, DDS
Iowa City, Iowa

AM Session: **Assessment and Management of the Aging Patient in the Private Practice Setting**

A) Description of the aging population
B) Managing the aging population safely in the office setting
C) Drug-induced dental disease

This presentation uses longitudinal patient case histories to illustrate the decision-making required for functionally independent, frail and functionally dependent older adults. Issues such as office design, patient scheduling and medical issues related to patient management will be discussed and described. The problem of drug-induced dental diseases will also be illustrated.

PM Session: **Treatment of the Aging Patient in the Office and at Other Sites**

A) Treatment of patients who have teeth with a poor prognosis
B) Alternate care delivery systems

This is a continuation of the first series of presentations which described the emergence of a new elderly dentate consumer. These elderly individuals have different attitudes and different utilization patterns of oral health services than previous cohorts. Even when faced with bone loss through periodontal disease, caries and unresolved periapical pathology, many of these individuals will no longer accept the simple solutions of the past, such as the extraction of their remaining natural dentition and the construction of complete dentures.

A variety of restorative philosophies, partial denture designs and preventive techniques for maintaining and caring for the aging dentition are presented by the means of longitudinal case histories.

CDA Annual Dental Meeting – Toronto 1993

Highlights of the 1993 Annual Dental Meeting Program

FRIDAY, APRIL 30TH (continued)

HYGIENE DEPARTMENT DEVELOPMENT

ANNETTE LINDER, RDH, BS
Richmond, Virginia

AM Session: **Creating the New Patient Recall: Beyond "Just a Cleaning and a Check-up"**

For many years, the recall appointment has been considered the most undervalued appointment in dentistry. Viewed by the patient as "just a cleaning and check-up", it is the first and easiest appointment to change or cancel. The challenge lies in creating a pro-active model for patient participation that clearly defines the real value of this most important appointment.

This course provides the requirements for design and implementation of a recall appointment that enables the dental team to identify and gain patient acceptance for recommended dental treatment.

PM Session: **Meeting the Challenge of the 90's Hygiene Department Development**

This course is designed for dental teams that want to meet the exciting challenges of dentistry in the 1990's. Hygiene department development, incorporating the team approach to enhanced recall and periodontal case management, continues to revitalize dental practices throughout North America. In this course you will learn how to transform the hygiene department and the entire practice, into one that is clinically responsible, ethically sound & highly productive. Topics include: Research update and clinical overview, patient assessment and documentation, case management, comfortable communication, positive insurance counselling.

PRACTICE MANAGEMENT

ANITA JUPP
Burlington, Ontario

AM Session: **Nuts and Bolts Management**

The majority of all production breakdowns occur when systems in the practice are not handled efficiently. Simplicity is the key to follow through on insurance collection, recare, communication and reactivation of lost patients.

Topics covered will include: systems for success, staff meetings, organizational skills, the art of delegation, promoting your practice from the inside out through patient education and the eight phases of patient communication.

PM Session: **Attract and Retain Good Patients and Good Staff**

Too many dental team members (including dentists) feel that the profession has let them down. They don't feel rewarded financially or emotionally at the end of each year. Let Anita Jupp change your impression of the dental industry today by helping your total team develop pride in the profession.

This lively session encourages audience participation. Bring your situations to this session of, "what to say if ..." Planned portions of this session deals with appointments, fees too high, do say/don't say situations, plus what the audience wishes to have answered.

Turnover greatly affects the office bottom line. Anita addresses the keys to effectively select those interviewed and how to evaluate those on your team.

In addition, Anita will focus on at least a dozen marketing ideas that will increase your number of new patients monthly. The constant patient-centered approach during and after the new patient visit assures the patients are retained.

AESTHETICS

ROSS NASH, DDS
Charlotte, North Carolina

AM Session: **Porcelain/Ceramic Bonded Restorations**

Porcelain has proven to be a reliable and aesthetic dental restorative material and when bonded to natural tooth structure can even strengthen the restored tooth. The ability to bond porcelain and ceramic materials to natural tooth structure has provided us with many new treatment options for our patients. In this seminar, you will learn the indications, preparations, impression and temporization techniques, placement procedures, and finishing and polishing techniques for bonded porcelain restorations. Veneers, crowns, bridges, inlays and onlays of porcelain and ceramic materials will be illustrated in a step-by-step fashion. Case histories will be used to outline possibilities for combined treatment modes providing the patient with both excellent function and stunning aesthetics.

PM Session: **Composite Resin Update**

Composite resins have become an integral part of restorative and cosmetic dental procedures. Without these remarkable materials, we could not perform many of the procedures which are routine today. The ability to bond to natural tooth structure (both enamel and dentin) has resulted in many new and predictable possibilities for aesthetic restorative procedures. In this seminar, you will learn about the new resin restorative materials which can be used to provide long lasting and aesthetic treatment for your patients. Direct and indirect technique will be illustrated in a step-by-step fashion. Posterior composites, anterior restorations, full freehand veneers, repair procedures on composite and porcelain, indirect composite resin inlays, onlays and veneers, and provisional composite restorations will be discussed.

ORTHO-PAEDO DENTISTRY

DAVID KENNEDY, MSD, FRCD
Vancouver, British Columbia

AM Session: **Early Orthodontic Treatment: Management of Eruption Problems, Anterior and Posterior Crossbites**

Principles of early orthodontic treatment with a diagnostic format will be covered. Problems of eruption of molars, canines and incisors along with problems of space loss will be reviewed. Diagnosis and treatment of anterior and posterior crossbites will be covered. Emphasis will be placed on diagnosis, treatment mechanics, methodology and appropriate treatment timing. Examples of treated cases using long-term results will be used to enhance the presentation. The disadvantage of inappropriate early treatment will be reviewed. During the presentation, the participants will have the opportunity to diagnose and treat plan cases.

PM Session: **Early Orthodontic Treatment: Management of Open Bites, Crowding and Missing Permanent Teeth**

Principles of early orthodontic treatment with a diagnostic format will be covered. Open bites and their management when caused by prolonged digit sucking habits will be reviewed. Management of the perimeter problems such as persistent spacing, arch length deficencies, missing permanent teeth, and tooth size discrepancies will be covered as they relate to early and late intervention. Strategies of arch expansion, maintenance of leeway space and serial extraction will be reviewed as they relate to long-term stability and facial balance.

CDA Annual Dental Meeting – Toronto 1993

Highlights of the 1993 Annual Dental Meeting Program

FRIDAY, APRIL 30TH (continued)

ORAL PATHOLOGY

MILTON SCHAEFER, DDS, MLA
Peoria, Arizona

AM Session: **Small Steps Toward Better Management of Infection Control**

Breaking down the management of infection control into smaller pieces makes it easier to understand and implement in the dental environment. Each step may be implemented on its own. When all the steps have been taken, a complete program of infection control will exist in the office. Updating the program is easier since any segment can be changed without any major change to the others.

PM Session: **AIDS, Herpes and Hepatitis: Know Your Enemies!**

Dr. Schaefer will present a comprehensive review of the latest information available on the three "Emerging Diseases". They have become the greatest influence for change in the way dentistry is practiced today. Information on the etiology and transmission of these entities will enable the attendees to better understand the need for universal precautions and strengthen their commitment toward prevention of disease transmission in the dental office.

NUTRITION

BARBIE CASSELMAN, BAA, FnCFS
Toronto, Ontario

PM Session: **The Role of Nutrition in a Healthy Lifestyle – Practical Advice**

Topics will include:

- traditional versus preventive medicine and the 'nutritional lifestyle'
- nutritional misinformation reigns supreme – separating fact from fiction
- the health problems that poor nutrition contributes to and the benefits of proper nutrition – you may be surprised
- why diets don't work
- how to determine one's ideal weight
- fat, protein and carbohydrates – hidden sources of fat, the best protein and carbohydrate sources, tips for healthy food preparation
- essential considerations for a nutritional lifestyle: caffeine, sugar, salt, alcohol, vitamins and minerals; dangers of supplementing
- exercise and weight maintenance – frequently overlooked issues; burning fat and building muscle.

SATURDAY, MAY 1ST

TEAM WORK

LORNA AKERVALL, CDA, PDA
Thunder Bay, Ontario

AM Session: **Hands Off Dentistry – Team Building for the 90's and Beyond**

Team development can be a challenging and rewarding experience. Team building is not an obscure mystery, but rather a utilization of what we already have been taught. Building your "DREAM TEAM" involves many factors, most of which are based on common sense and positive attitudes ... very few are related to technical skills. This seminar will explore issues relevent to the development of an effective, healthy team.

PROSTHODONTICS

BRIEN LANG, DDS, MS
Ann Arbor, Michigan

AM Session: **Lingualized Integration: An Occlusal Scheme for Edentulous Implant Patients**

The occlusal interface and its importance to biomechanics and implant survival continues to be overlooked. What is lacking, for the practitioner, is a clear concept of the occlusal rehabilitation required and appropriate for the totally edentulous implant patient. Lingualized Integration represents an occlusal scheme using specific tooth moulds which will improve the likelihood of maximum intercuspation, absence of deflective occlusal contacts, cusp height for selective occlusal reshaping, and a natural and pleasing appearance. Factors in the articulation and arrangement of the posterior teeth to assure the attainment of the fundamental goals of comfort, function and appearance in occlusal rehabilitation for edentulous implant patients will be presented.

PM Session **Prosthodontic Management of the Difficult Denture Patient**

The loss of one's natural teeth and the continued resorption of alveolar bone has left this patient population with functional compromises that are extremely difficult to treat by conventional complete denture therapy. However, there are ways to overcome many of these difficulties by techniques that are both unique and simplified. This presentation is directed towards the generalist who enjoys these management challenges and will discuss in some detail:

a) the importance of the data-gathering appointment and its significance to the overall treatment,
b) how to record the available denture base supporting areas,
c) a simple approach to registering and transferring from the patient to the dental articulator, the horizontal and vertical dimension needed to restore the occlusion,
d) the occlusal scheme required to meet the functional demands of the patient, and finally,
e) the importance of recall and maintenance.

NUTRITION

BARBIE CASSELMAN, BAA, FnCFS
Toronto, Ontario

AM Session: **Feeling Good all the Time – A Healthy Approach to Weight Control**

Topics to be covered include:

- traditional approaches to health versus a healthy lifestyle; practising a nutritional lifestyle
- why is the public so confused about nutrition – setting the record straight
- diets, hucksters and miracle solutions versus a nutritionist's approach
- feeling good all the time – the role of nutrition
- metabolism and weight control: male/female differences, energy expenditure & caloric consumption, aging & metabolism, determining one's ideal weight
- keeping off the last five pounds – it's not as difficult as you may think
- nutritional secrets for slowing the aging process
- practising a nutritional lifestyle on the go: eating at the office, enjoying restaurants, parties and airplane travel
- healthy snacks don't have to taste terrible – some alternatives
- thin women are often unhealthy women – how to stay slim and healthy
- other women's problems: PMS and cellulite – a nutritional solution.

CDA Annual Dental Meeting – Toronto 1993

Highlights of the 1993 Annual Dental Meeting Program

SATURDAY MAY 1ST (continued)

ORAL MEDICINE

STUART FISCHMAN, DMD
Buffalo, New York

AM Session: **Infection and the Oral Cavity: Herpes, Hepatitis and AIDS**

Participants will learn the epidemiology of infectious diseases, early warning signs every dentist should recognize, and the management of oral infectious diseases. The diagnosis and treatment of primary herpetic disease will be reviewed. The epidemiology of AIDS and the contemporary management of oral disease in the HIV positive patients will also be discussed. Although hepatitis B is now preventable, the clinician will be presented with hepatitis B carriers and patients with hepatitis A in need of dental treatment.

PM Session: **Cankers, Chancres, Cancer – Update on Oral Ulcers**

Oral ulcers are one of the most common mucosal problems presenting to the general dentist. Accurate diagnosis is essential for proper management. This presentation will review the clinical appearance of the more common ulcerative diseases, the steps necessary for diagnosis, and the medications available for management. Recurrent oral ulcers, vesiculobullous diseases, and oral manifestations of systemic diseases will be discussed. The basic questions: What is it? Where did it come from? What will make it go away? Will be answered for the clinician – and the patient.

TMJ

GILLES LAVIGNE, DDS, MSc
Montreal, Quebec

AM Session: **Bruxisme et douleur myofasciale: où en sommes-nous?**

De 5 à 20% de la population rapportent des signes et symptômes associés au bruxisme et à la douleur myofasciale au niveau trigéminal. Depuis une vingtaine d'années, il y a eu un intérêt marqué au sein de la communauté pour ces conditions. Etant donné l'abondance de la littérature sur le sujet il est parfois difficile pour le clinicien de s'y retrouver. Pour faciliter l'approche clinique de mes collègues, je vais revoir les éléments suivants:

- L'évaluation des critères dignostiques;
- La valeur de certains outils dignostiques tel que le systèmes d'enregistrement du bruxisme ou des méthodes de mesure de la douleur (algomètre);
- Les éléments impliqués dans la physiopathologie de ces conditions tel que le stress, les meurotransmetteurs, etc.;
- La valeur thérapeutique de diverses approches tels que la relaxation, l'hypnose, la pharmacologie, la plaque occlusale, etc.

PM Session: **Bruxism and myofascial pain: Where are we in 1993?**

Between 5 to 20% of the population reports signs and symptoms related to bruxism and myofascial pain. The current interest in these problems is evidenced by the recent increase in the quantity of related publications; however, the clinician frequently finds that these reports draw divergent conclusions. This presentation will focus on the following topics that may facilitate patient management:

- Evaluation of diagnostic criteria
- Value of diagnosis tools such as bruxism recorders, pain threshold algometers, etc.
- Physiopathology related to these conditions, including stress and neurotransmitters
- Value of various treatment modalities such as relaxation, hypnosis, stabilization splint and pharmacotherapy.

More summaries will follow in the January issue of the *CDA Journal:*

STANLEY MALAMED, DDS
Los Angeles, CA
Anaesthesia and Pharmacology

GRIEVE MEMORIAL LECTURE
Orthodontics

CLAUDE LAMARCHE, DDS
Montreal, QC
Prosthodontics/Prosthodontie

WALTER HAILEY JR.
Sponsored by Healthco D.D.L.
Hunt, TX
Practice Management

JACK CATON
Rochester, NY
Periodontics

PETER JUDD, BSc., DDS, Dip. Paedo., MSc
REBECCA YACOBI, DDS, MSc
DOUGLAS JOHNSTON, DDS
DAVID KENNY, DDS
Sponsored by Sick Children's Hospital of Toronto
Toronto, ON
Paediatric Dentistry

MARK SPATZNER, DDS
Montreal, QC
Periodontics/Periodontie

RICHARD WILSON, DDS
Richmond, VA
Periodontics

THOMAS OLSON
Sponsored by Aurum Ceramic/Classic
Calgary, AB
Financial Planning

UNIVERSITY OF TORONTO

TED LEVALLIANT
Sponsored by LeValliant Associates, Inc.
Ottawa, ON
Financial Planning

CLYDE HARRIS/
CYRIL GALLANT
Sponsored by CDSPI
Toronto, ON
CDA RSP and CDIP

CDA Annual Dental Meeting – Toronto 1993

Social Program Highlights

THURSDAY, APRIL 29 • 5:00 - 7:00 p.m. /
Metro Toronto Convention Centre – Constitution Hall

Ash Temple and CDA Conventions presents ...

The 1993 Opening Ceremony

featuring

Canadian Children's Opera Chorus

AND

The Caribbana Dance Troupe

All convention delegates are invited to attend the Opening Ceremony. Tickets are available on request to registered delegates only – be sure to request your ticket when you register for the annual dental meeting, space is limited.

The Opening Ceremony will be followed by a

Fun Night

sponsored by the Ontario Dental Nurses and Assistants Association and Healthco.

An evening of fun, fantasy and illusion you have never seen before.

Delegates may purchase tickets to enjoy "An Evening at La Cage" and a light meal. The Meal will be served in the Reception Hall between 7 and 8 p.m. and the Evening with La Cage performance will be held in Constitution Hall at the Metro Toronto Convention Centre after dinner. This Las Vegas style revue is a dazzling diamond ... you'll share a spectacular all-star cast with high-powered routines and amazing impersonations. You'll see everyone from Michael Jackson and Liza Minelli to Elvis Presley and Diana Ross ... or at least you'll think you're seeing them.

All convention delegates will receive complimentary tickets to attend the 'Party Lights' Dance that will be held at the Metro Toronto Convention Centre. Cash bar, good music and plenty of fun – plan to attend! The dance is scheduled to begin at 9 p.m. (after La Cage).

FRIDAY APRIL 30 • 7:00 p.m. - 1:00 a.m. / L'Hotel

Get ready for a cultural extravaganza at the

President's Gala - A Cavalcade of Cultures

Ethnic buffet and dancing to the music of Doug Zimmerman and his Orchestra.

1993 CANADIAN DENTAL ASSOCIATION ANNUAL DENTAL MEETING

April 28 – May 1, 1993 • Toronto

Hotel Reservation Form

Please check appropriate category:

❑ Dentist ❑ Hygienist ❑ Assistant ❑ Office Personnel ❑ Exhibitor (Company name: _____)

❑ Other (please specify) _____

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

Telephone: (____) _____ (____) _____
(Residence) (Office)

Type of Room:

❑ Single ❑ Double ❑ Twin ❑ Other (please specify) _____

Special Requests: _____

Indicate your hotel choice* (by numbering the boxes):

❑	L'Hotel (CDA Headquarters)	$ 140.00 single / double
❑	Royal York (CDA Headquarters)	$ 125.00 single / double
❑	SkyDome Hotel	$ 125.00 single / double
❑	Holiday Inn on King	$ 99.00 single / double

* Prices do not include GST, PST or CCT.

Arrival Date: _____ **Arrival Time:** _____ **Departure Date:** _____

All changes and/or cancellations must be made *IN WRITING* through CDA Conventions. Fax to (613) 523-3062

In order to reserve a room, a guarantee for the first night is essential. The guarantee will apply to the first night ONLY.
To cancel your reservation advise CDA Conventions at least three (3) days prior to your arrival.

CHEQUES WILL NOT BE ACCEPTED.

❑ MasterCard ❑ American Express ❑ VISA Card Number: _____ Expiry Date: _____

Signature: _____

Send Reservation Form to: CDA Annual Dental Meeting, Canadian Dental Association,
1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

DEADLINE for Reservations: **March 5, 1993**

CANADIAN DENTAL ASSOCIATION ANNUAL DENTAL MEETING

GST Registration Number: R016845209

Toronto • April 28 – May 1, 1993

ONE FORM PER PERSON

PRE-REGISTRATION FORM • Please PRINT

To ensure your requests are accommodated – ***register early***. Advance registrations will be accepted until **March 5, 1993**. Each on-site registration will be subject to a $27.00 administrative fee (GST included).

SURNAME: _____ FIRST NAME: _____ SEX: M F

ADDRESS: _____

(Street) (City) (Province)

_____ TELEPHONE: (___) _____ (___) _____

(Postal Code) (Office) (Residence)

CDA Membership Number: _____ License Number: _____

LIMITED ATTENDANCE COURSES • WEDNESDAY APRIL 28

Burton Press, D.D.S. – *PRACTICE MANAGEMENT* – All-day Lecture
Dentist. . . . . (7% GST included) $ 195.00 _____
Staff . . . . . (7% GST included) $ 95.00 _____

Terry Donovan, D.D.S. – *RESTORATIVE* – All-day Lecture
Dentist. . . . . $ 195.00 _____
Staff . . . . . $ 95.00 _____

Jeff Miller / Charlotte Peer Miller – *ENHANCING THE CAREER OF DENTAL RECEPTION* – All-day Lecture
Staff . . . . . (7% GST included) $ 95.00 _____

Torsten Jemt, D.D.S., Ph.D – *IMPLANTS* – Hands-on Program
• 1 1/2-DAY COURSE: WEDNESDAY AND THURSDAY (A.M.) •
Dentist (limited to 48 participants). . . . . $ 350.00 _____

LIMITED ATTENDANCE COURSES • SATURDAY MAY 1

Donald Yu, D.D.S. – *ENDODONTICS* – Hands-on Program
Participation in theoretical lecture all day Friday, April 30 is a pre-requisite.
Dentist (limited to 30 participants). . . . . $ 195.00 _____

*** GST is included in the Limited Attendance Practice Management courses. GST is not charged on Limited Attendance Scientific courses. Lunch *is* included in Limited Attendance courses.**

ANNUAL MEETING • APRIL 29, 30 and MAY 1

Choose only one delegate type. 1 registrant per form.

❑ DENTIST (***Includes***: Scientific sessions, exhibits)
Member, CDA or ODA . . . . . $ Nil —
Non-member, Others . . . . . (7% GST included) $ 155.00 _____

❑ DENTAL HYGIENIST (***Includes:*** Scientific sessions, exhibits)
CDHA/ODHA Member . . . . . (7% GST included) $ 99.00 _____
Non CDHA/ODHA Member . . . . . (7% GST included) $ 120.00 _____
Please include proof of membership or non-member fee will apply.

❑ DENTAL ASSISTANT (***Includes:*** Scientific sessions, exhibits)
CDAA/ODN & AA Member . . . . . (7% GST included) $ 69.00 _____
Non CDAA/ODN & AA Member . . . . . (7% GST included) $ 99.00 _____

❑ ADMINISTRATIVE PERSONNEL / OFFICE MANAGER / RECEPTIONIST (***Includes:*** Scientific sessions, exhibits)
CDAA/ODN & AA Member . . . . . (7% GST included) $ 69.00 _____
Non CDAA/ODN & AA Member . . . . . (7% GST included) $ 99.00 _____

❑ TECHNICIAN
(***Includes:*** Scientific sessions and exhibits). . . . . (7% GST included) $ 99.00 _____

❑ SPOUSE / GUEST (***Includes:*** Scientific sessions, exhibits)
Program Registration . . . . . (7% GST included) $ $50.00
Thursday Tours and Luncheon (opt.). . . . . (7% GST included) $ 60.00 _____
Friday Tours and Luncheon (opt.) . . . . . (7% GST included) $ 60.00 _____

❑ CHILDREN (6 to 12 years) Child's Age: _____
Thursday program . . . . . (7% GST included) $ 35.00 _____
Friday program . . . . . (7% GST included) $ 35.00 _____

STUDENTS MAY REGISTER ON-SITE ONLY.

❑ SOCIAL EVENTS
Opening Ceremony – Thursday, April 29 (Subject to space availability)
Will attend ❑ Yes ❑ No . . . . . $ Nil _____
La Cage – Thursday, April 29 (per person) . . . . . (7% GST included) $ 20.00 _____
President's Gala – "A Cavalcade of Cultures" – Friday, April 30
(per person) . . . . . (7% GST included) $ 75.00 _____

❑ FUN RUN – Saturday, May 1 (A.M.) . . . . . (7% GST included) $ 20.00 _____

❑ MATINÉE PERFORMANCE Elgin Theatre – Saturday, May 1 (2 P.M.)
"Joseph and the Amazing Technicolor Dreamcoat"
(Limited number of tickets available) . . . . . (7% GST included) $ 80.00 _____

TOTAL. . . . . $ _____

The above registration fees are paid by _____

❑ I wish to pay the above total by credit card: ❑ MasterCard ❑ VISA ❑ AmEx

Card#: _____ Expiry date: _____

Signature of Cardholder: _____

❑ I enclose a cheque **payable to the Canadian Dental Association.**
Post-dated cheques will *not* be accepted.

NOTE: Credit card orders can be faxed directly to CDA Annual Meeting at 1-613-523-3062.

ACCOMMODATION
☐ Hotel Registration Form enclosed for _____ (number of) rooms.
☐ Do not require a room / Other arrangements made

Mail registration form with payment to:
1993 CDA Annual Dental Meeting
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

CANCELLATION POLICY:
Cancellation received, in writing, on or before March 5, 1993 — full refund.
Cancellation received, in writing, after March 5, 1993 — subject to a 25% administrative charge.
No refund after April 17, 1993

Dentists, Assistants, Hygienists, Office Personnel & Technicians registering by March 5, 1993 will be eligible to win two tickets anywhere Air Canada flies in Europe and North America!

"CDAnet is paying off in spades for dentists right across Canada. Claims administration has never been simpler. Carrier payment has never been faster. And patients have never been happier. The bottom line on CDAnet is this – it works."

Dr. Don MacFarlane, Chairman
CDAnet Committee
Canadian Dental Association

CDAnet...
A REVOLUTIONARY ADVANCE IN CLAIMS PROCESSING

CDAnet is now at work in hundreds of dental offices across Canada. And it is delivering on its promises: speedy claims processing, quick claims payment, and satisfied patients.

CDAnet – a revolutionary advance in claims processing.

Get it working for you.

For more information call:
1-800-267-9701.

CDAnet™
Dentistry's National Information Network

Factors affecting the future need for dental manpower in Canada and Quebec

I. Stangel, DMD, FADM
Montreal

ABSTRACT

During the past decade, dental faculties in North America have reduced class sizes due to a perceived oversupply of dentists. Several schools have been closed outright, and others have been threatened with closure. These actions may have a negative impact on the future supply of dentists. The current beliefs with regards to the oversupply of dentists have inadequately accounted for the dramatic demographic and epidemiologic changes that are occurring in North America. Major changes in population distribution and disease trends point to an increased need for adult dental services in the future. Therefore, models for dental manpower needs should integrate these data to avoid a potential shortage of dental health care personnel in the future.

SOMMAIRE

Au cours de la dernière décennie, les facultés de dentisterie en Amérique du Nord ont réduit le nombre de leurs étudiants parce qu'on prévoyait qu'il y aurait trop de dentistes à l'avenir. Quelques écoles ont dû fermer leurs portes et d'autres ont réussi de justesse à survivre. Ces mesures, cependant, pourraient avoir des conséquences fâcheuses. En effet, ceux qui ont cru qu'il y aurait trop de dentistes n'ont pas prévu les changements spectaculaires d'ordre démographique et épidémiologique qui se produisent actuellement en Amérique du Nord. Ces grands changements dans la population et l'évolution des maladies indiquent qu'on aura besoin prochainement d'un plus grand nombre de dentistes pour les adultes. Aussi, dans l'évaluation des besoins en main-d'oeuvre dentaire, convient-il d'inclure ces nouvelles données, sinon il pourrait bien y avoir demain une pénurie de dentistes.

Introduction

Within the last decade, a perceived oversupply of dentists in Canada has led organized dentistry to call for a reduction in the number of new graduates. More importantly, this perception has been used to justify recommendations for the outright closure of certain dental schools.[1,2] To date, three Canadian dental schools have been faced with the possibility of closure, and a number of American and European schools have been closed.

In 1991, administrators at McGill University (Montreal, Quebec) recommended the closure of the dental faculty on the grounds that: "there is a well-documented decline in the need for dentists..."[2] However, as current indicators point to an increasing need for the services of dental health practitioners, decreasing their numbers could have a negative impact on the future oral health of the population groups at risk for dental disease. It is therefore worthwhile to review the current data on dental manpower needs.

The Manpower Issue

A number of factors have propagated the dental profession's perception that there is an oversupply of dentists. These include the documented reduction of dental caries in school-age children and the implementation of disease prevention programs for adults. Based on these factors, and a concern that supply would eventually exceed demand for oral health care, dental associations have called for a reduction in manpower.[3,4,5] In response, there has been an almost universal decrease in dental school class sizes in North America, as well as in many of the industrialized countries outside of North America.

As a result, the overall enrolment in Canadian dental faculties has demonstrated a downward trend during the last decade (**Fig. 1**), with the average number of students decreasing by a factor of 20 per cent. This reduction has only affected seven of Canada's 10 dental faculties, however. None of the remaining schools – one in British Columbia and two in Quebec – have reduced

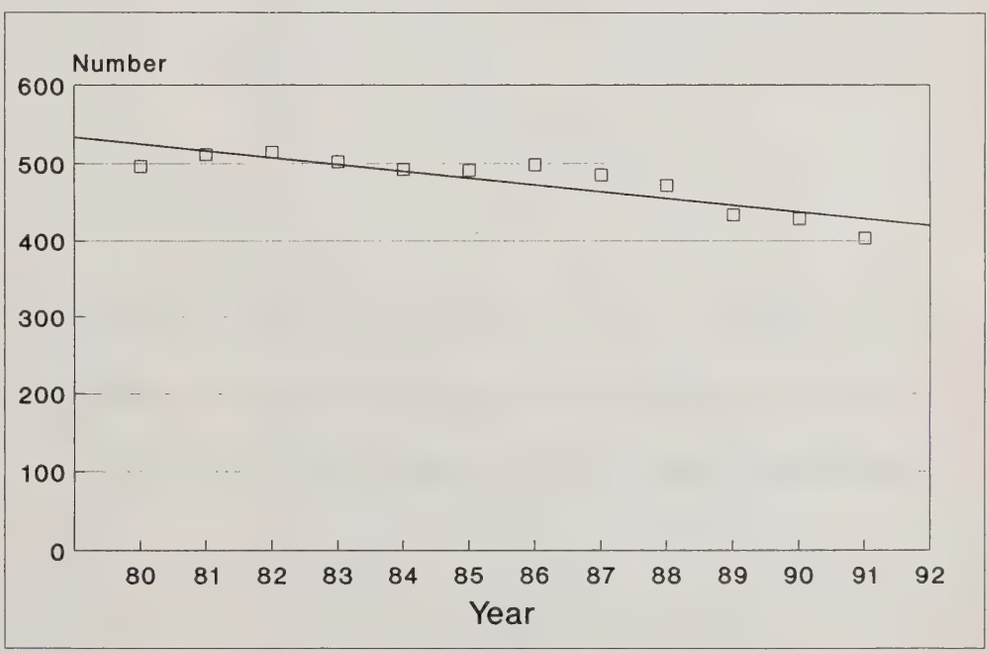


***Fig 1:** Enrolment Trends in Canadian Faculties of Dentistry, 1980-91*

the MISSION IS the MESSAGE

THE MISSION

The Canadian Dental Association is:

The authoritative national voice, resource, and focus of unity for the profession of dentistry in Canada – dedicated to meeting member needs, and to the promotion and provision of optimal oral health for Canadians.

THE MESSAGE

CDA's mission delivers an important message to every dentist in Canada.

- **It defines** CDA's essential role in the world of Canadian dentistry.
- **It directs** CDA's every plan and action.
- **It declares**, to over 10,000 member dentists across Canada, that their national association is dedicated to serving their needs.

CDA. Serving Member Dentists across Canada.

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

1902-1992

Raison d'etre: *What* CDA's *new mission statement means to you*

CDA's new mission statement is more than simply the articulation of some lofty ideals. It is, in fact, the cornerstone on which to build a stronger, more dynamic and a more effective organization to represent and to serve dentistry in the 1990's.

TIMES *have* CHANGED

The need for a redefined mission is two-fold. First, times have changed. A big part of that change is economic. The booming Eighties are gone, taking with them a train load of unrealistic expectations. We can't have it all; we can't do it all. Not unless we have all the money in the world. And we don't.

The Nineties are proving sobering for all of us. We are all working harder just to hold our own in the face of a dizzying array of issues and challenges: governments looking for more tax dollars, public concerns about threats to their health from dental practices, changes to third party plans that threaten the quality of care in the interest of cost containment, media fanning the flames of public anxiety around anything they can find to make news... In today's environment, every dentist's practice depends in no small part on the authority and credibility with which CDA can be there for us and speak for the profession.

DENTISTRY *has* CHANGED

Second, dentistry itself has changed. Today's dentist is facing the new realities of establishing or maintaining a practice. Getting started is more difficult than ever for the recent graduate. A degree is no longer a ticket to an immediately rewarding career. The costs of establishing a new practice are prohibitive; associateships are in short supply. The knowledge explosion makes it difficult to keep pace with dental science and practice. Marketing has emerged as a skill every dental practice needs. What patients want and need puts increasing pressure on practitioners to keep pace. In short, as dentists we all need help, the kind of help CDA provides as the national resource.

Today. TOGETHER.

The range, nature and speed of change are further indications of the importance of the dental profession working together. Strength comes not simply in sheer numbers but in the ability to forge consensus, to formulate policies, standards and guidelines and to plan and execute programs that enable the individual dentist to maintain his or her professional independence. Issues such as infection control, mercury toxicity, or GST, don't recognize political boundries. We only have credibility, if we have a national voice. In short, national unity is as important to dentistry as it is to the country as a whole. The focus of such unity for the profession falls quite naturally to the CDA.

A SENSE OF MISSION

Authoritative voice. Resource. Focus of national unity. These are the essential roles to which CDA will direct its time, energy and resources in the years ahead in support of two fundamental principles: service to its members and advocacy for the optimal oral health of Canadians. All this adds up to a renewed, rededicated CDA, armed with new clarity of purpose and direction. It means that every member can expect CDA to provide continuing leadership and support in these challenging times.

Bernard Dolansky, BA, DDS, MSc
President of the Canadian Dental Association

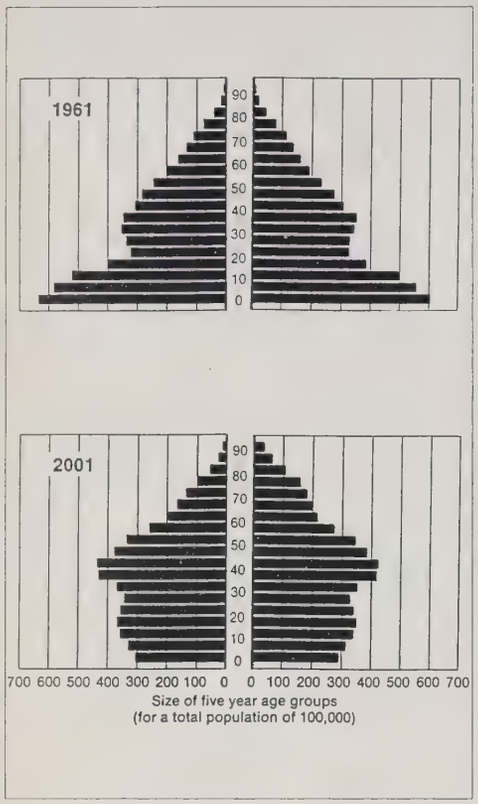


Fig. 2: Changes in age structure, Canada, 1981-2001

enrolment over this period. Interestingly, the decrease in enrolment in Canadian dental faculties is offset by the number of Canadians studying dentistry in the United States.[6]

Estimates on future manpower requirements have been primarily based on the supply and utilization patterns in effect at the time of assessment.[7,8,9] Although demographic and disease trends have been integrated with these data,[10,11] some of the dramatic shifts that have occurred in population age structure and the epidemiology of oral disease have not been adequately accounted for in the current recommendations on supply. In the province of Quebec, as well as in other Canadian provinces and many industrialized nations, these shifts indicate that dental care requirements, as well as demand, will increase from current levels. Early indications for this shift have already occurred in Sweden, where a dental school that had been closed was recently reopened.[12]

Demographic Considerations

One of the most significant factors to impact on the future need for dental care is the maturation of the exceedingly large population group born in the postwar era between 1946 and 1964 – the baby boom generation. This group will place an inordinate stress on Canada's social support systems, from old-age pensions to health care, in the future.

The impact of the baby boomers on Canada's population distribution is shown in **Fig. 2.**[13] In effect, the traditional pyramidal-shaped distribution that was observed in 1961 will be transformed into a pentagonal distribution by 2001. The largest increase will occur in the 35- to 50-year-old age group. As this group continues to age, the broad region of distribution will advance accordingly, resulting in an ever-increasing number of older adults.

This effect can also be observed in **Fig. 3**, which displays broad age-grouping data for Quebec and Canada in 1986 and 2011[14] (**Fig. 3**). The 65 and over age group will increase by a factor of approximately 80 per cent in both Quebec and Canada, while the 0-17 age group will decrease by factors of 25 and 35 per cent, respectively. For the same period, the growth rate of the 18-64 age group will increase by 20 per cent in Canada and nine per cent in Quebec.

The impact of these shifts can be seen more effectively in **Fig. 4**. For the 0-17 age group, negative growth rates of 35 per cent and 25 per cent can be observed in Quebec and Canada, respectively. The growth rate for the 18-64 age group will increase by 10 per cent in Canada and 20 per cent in Quebec, while that of the 65 and over group will dramatically increase by factors of 80 per cent and 82 per cent, respectively. These trends will result in an overall net increase of 5.8 million adults in Canada by the year 2011, with 0.9 million of them residing in Quebec. Population increases along these lines have been documented in the United States[7] and Europe.[15,16,17]

Disease Patterns

As stated previously, a valid assessment of future oral health needs requires an understanding of the shifting patterns of disease. In the United States, a recent national dental health survey of working adults (18-64 years of age) and seniors found that less than four per cent of the under 65 group were edentulous[18] (**Fig. 5**), although more than 35 per cent of the 65 and over group were edentulous. Compared to the results of a similar survey undertaken in 1962, this indicates a decrease in edentulousness of five per cent for the under 65 group and of 15 per cent for the seniors. Half of the working adults had lost no more than a single tooth. The average number of decayed or filled tooth surfaces (DFS) was 23, of which 95 per cent were restored. Twenty-one per cent of the same under 65 age group had root caries, of which nearly half were restored. Given the geographic proximity and lifestyle similarities of the American survey participants to Canadians, it is likely that these trends can be extrapolated to Canada.

Clearly, more adults are retaining their dentition for longer periods of time. The implications of these data are that there will be more teeth at risk for all types of oral disease in the future. One study[19] has indicated that the number of teeth at risk will increase by a factor of 157 per cent between 1980 and 2000. Projected to the year 2030, this factor will increase to 179 per cent. During this time, population growth rates

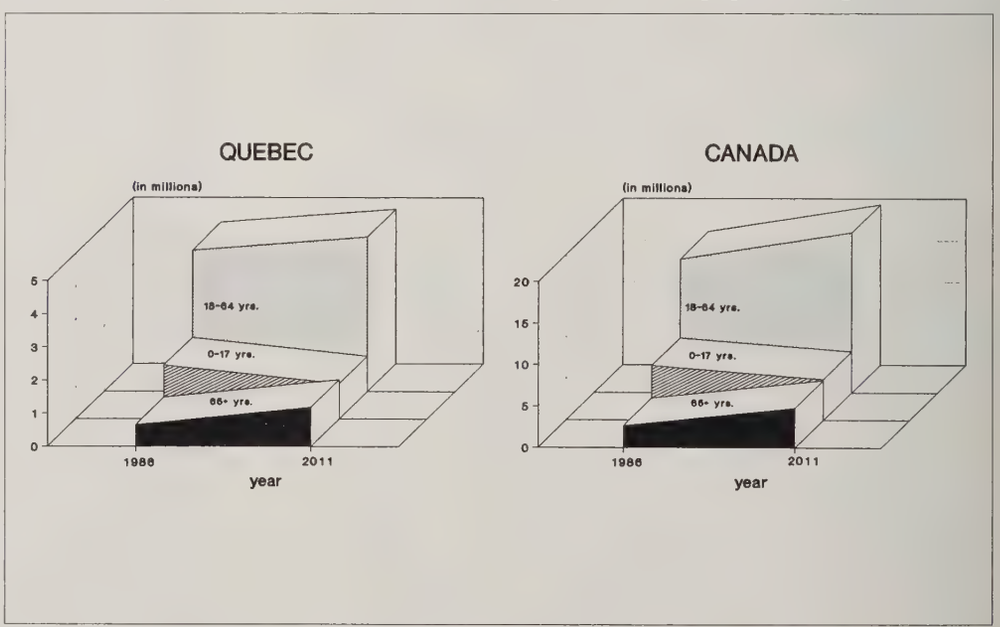


Fig. 3: Broad age-group changes, Quebec/Canada 1986-2001

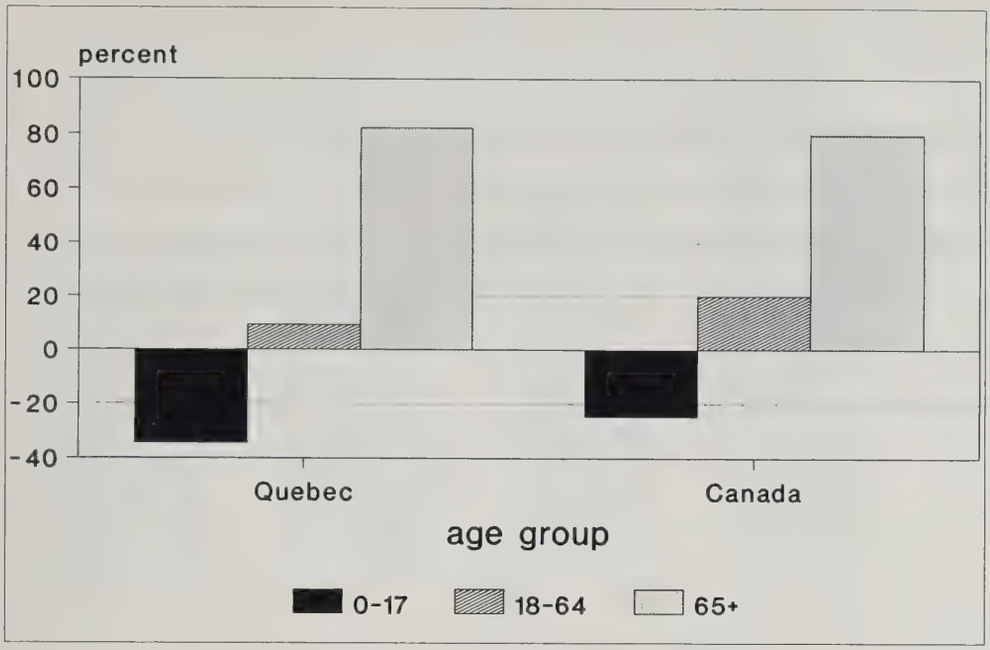


Fig. 4: Per cent change in broad age groups, Quebec/Canada, 1986-2011

will only increase by factors of 117 in Quebec and 130 per cent in Canada.

These data further imply that the market for preventive services, restorative placement and replacement, as well as other treatments consistent with higher rates of dentulism, i.e., periodontics, esthetic dentistry, and adult orthodontics, is large and will become larger with time. Furthermore, as the population group of working adults ages, and joins the over 65 age group, increased dental services commensurate with geriatric populations, such as restorative procedures on root surfaces, prosthodontics, endodontics and oral medical services, will be required.[20]

Disease Rates

Although the incidence of dental caries in children has declined in industrial countries, there is no data to indicate that a commensurate decline has occurred in adults. In fact, the decayed-filled-surfaces (DFS) rate for adults indicates the opposite effect for coronal surfaces (**Fig. 6**).[18] A sharp increase in the DFS rate for coronal surfaces can be observed through age 39, after which the rate of increase slows to peak at age 45. After a mild decline, this DFS rate begins a precipitous decrease at age 60. At this time, the DFS rate for root surfaces, which had been slowly rising, begins to increase at a faster pace, however. While 21 per cent of the 18-64 age group had root caries, 57 per cent of the 65 and over age group demonstrated this condition.[21] It should be further noted that, despite the decline in caries in young populations, Quebec school-age children still have a 40 per cent higher rate of coronal caries than do their counterparts in the United States.[22]

Projections of the future need for operative dentistry in Canada indicate that three-million additional hours of dental care will be required between 1976 to 2001.[23] This represents a 16 per cent increase over the level of operative dentistry provided to Canadians in 1976. Although this figure has been questioned,[11] more recent data from the United States indicates that the need for operative dentistry has already increased by a factor of 20 per cent in that country from 1972 to 1990. Projections indicate that by 2030 this need will have increased by a factor of 54 per cent.[19] Thus, the Canadian data appears to be a reasonable estimate.

The increased need for operative dentistry in Canada will occur despite the decline in dental caries in children and young adults. This projected increase does not take into account the demand for esthetic dentistry, a service which has increased by 10 per cent over the last decade,[24] or the active incidence of root caries associated with aging populations.[18,25] As a gauge, in the United States, the increase in the need for operative dentistry by adults has been judged to be three times greater than the decrease in the need for children's operative dentistry.[7]

Estimates of the need for fixed and removable prosthodontic services show further substantial increases, as would be expected with a larger future cohort of elderly people.[26] Projections to the year 2000 show an increase in need of 37 per cent as compared to 1974.[27] This value does not account for the recent interest in implant procedures, which will impact on the demand for surgical as well as prosthodontic services.

Although the overall severity of periodontal disease has decreased in the general population, large numbers of individuals demonstrate some need for periodontal treatment. Furthermore, the disease remains severe in a significantly large number of subgroups.[18] This risk will increase in the future for older adult groups, as more intact dentitions are retained.[28] The net increase in the need for periodontal services in Canada in the year 2001, using 1976 as a baseline, is projected to be 5.9 million additional hours.[23]

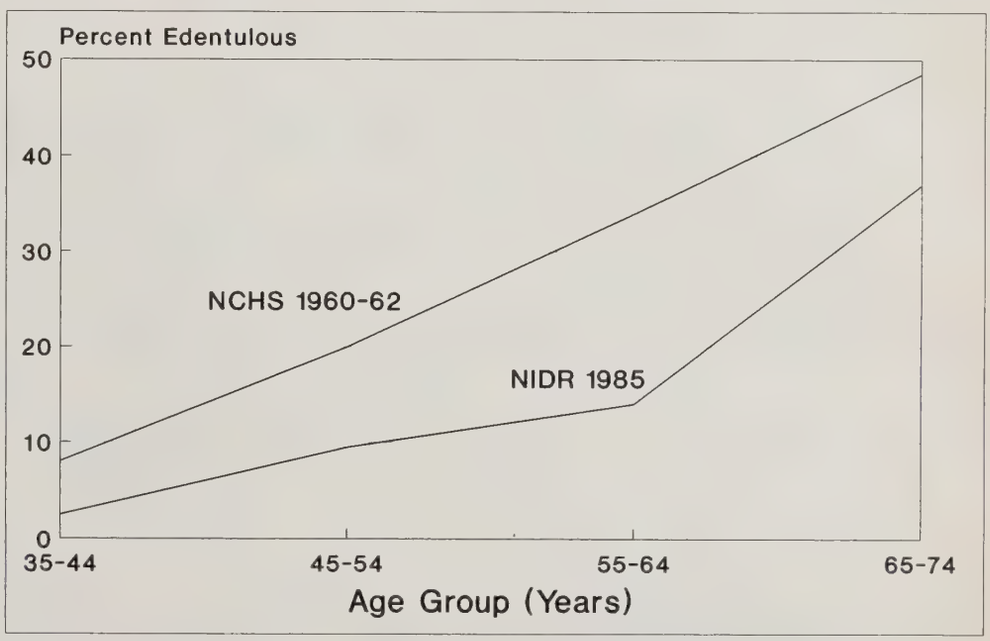


***Fig. 5:** Per cent of edentulous persons among adult populations, U.S.*

Supply of Dentists

The recommended ratio of dentists to population, according to the World Health Organization (WHO), is 1:1,200. It is recognized, however, that the optimal ratio can vary with disease incidence and utilization patterns. As these factors are correlated, and as the evidence supports an increased future need for dental care, it is likely that current values should be construed as the minimum acceptable ratios, despite the discrepancy with WHO standards.

The dentist to population ratios in Canada for the period 1971 to 2001 are indicated in **Fig. 7**. After a steady decrease through 1991, the ratio for the year 2001, projected to be 1:1,800, shows a slight increase. This is consistent with the United States, where the number of dentists per 100,000 peaked in 1987.[1] It should be noted that the Canadian data projected for the year 2001 do not account for the decrease in class sizes of Canadian schools of dentistry, nor for the impact of Canadians studying dentistry in the United States. Of the latter group, in 1989 and 1990, 14 and 10 Canadian graduates of U.S. dental schools, respectively, received certificates from the National Dental Examining Board.[29]

Despite the large number of Canadian students studying dentistry in the United States, the number of these individuals who subsequently receive licenses in Canada appears to be less than the total reductions in class sizes at Canada's 10 schools of dentistry. Thus, if the present trend continues, the projected dentist to population ratio for Canada in the year 2001 will likely remain as an upper limit.

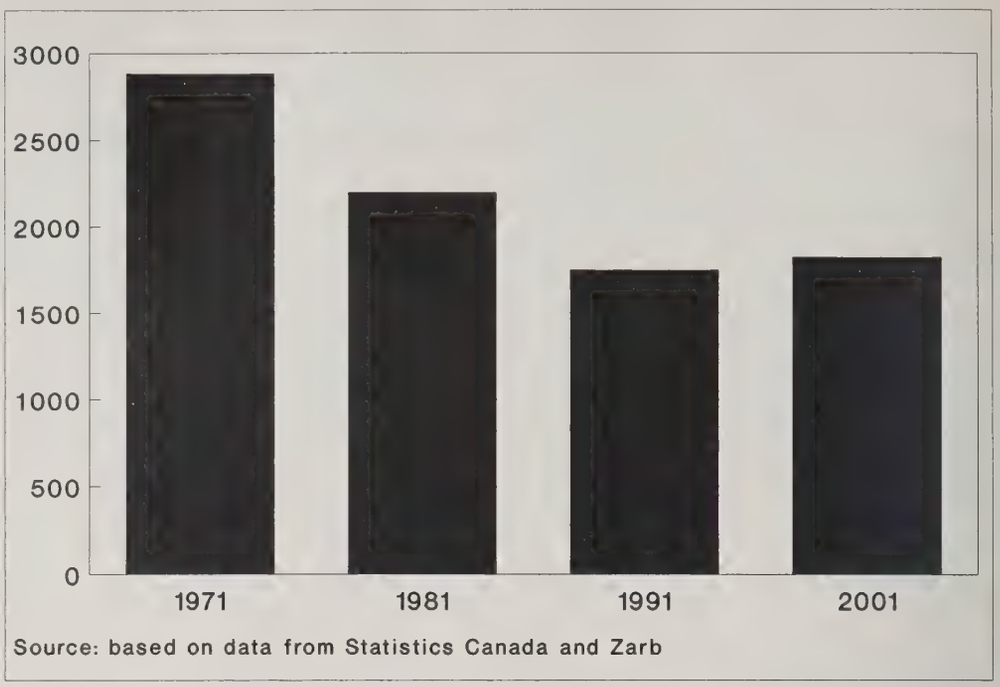


Fig. 7: Dentist population ratios, Canada, 1971-2001

The current dentist to population ratio in Quebec is 1:2,155. No projected values for the future are available at this time. However, there is an annual net increase of approximately 40 dentists[30] in Quebec. Using this value, and assuming it to be constant, an estimate of the number of dentists in Quebec to the year 2001 can be made using the projected population value for that year and the current number of dentists. Thus, projections indicate that the dentist to population ratio in Quebec for the year 2001 will be 1:1,966. It should be noted that this value was achieved in Ontario in 1981. If a projection to the year 2011 is made, assuming a constant annual net increase of 40 dentists in Quebec, the resulting dentist to population ratio would be 1:1,768. This ratio is the 1988 dentist to population ratio for Ontario.[31]

Based on current data, the retention rate for graduates originating from Quebec has been 76 per cent for the last 10 years.[32] Thus, McGill University currently contributes approximately 20 individuals a year to the pool of dentists in Quebec. If this source were lost, an adjustment of the ratio of dentists to population would yield a value of 1:2,035 for the year 2001. This would constitute a net improvement of the dentist to population ratio from current levels of only 120 dentists, despite an increase of population by a factor of 0.4 million people.

The Ordre des dentists du Québec has stated that its previous manpower projections for meeting the oral health needs of the Quebec population were based on a net annual increase of 80 dentists per year. It has gauged its policies toward that number, even though the actual net increase will be 40 dentists per year, as previously stated. If the faculty of dentistry at McGill closed in 1995, as planned, the net figure would have decreased, further jeopardizing the projected dentist to population goals for Quebec. The clear result would be an insufficient future supply of dentists for the Quebec population.

The issue of the supply of dentists in

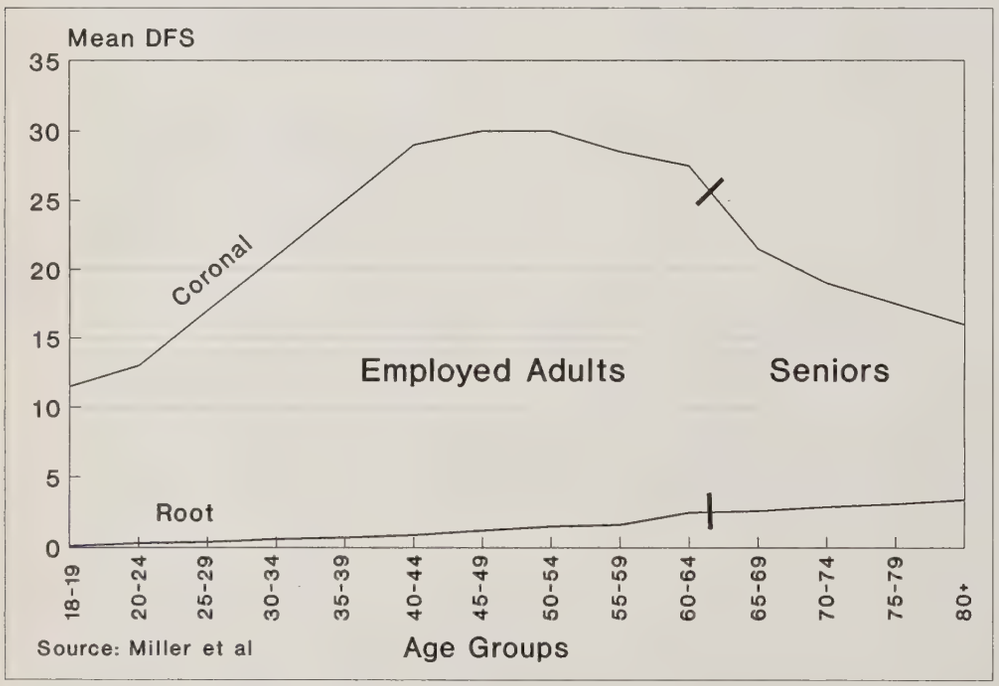


Fig. 6: Decayed and filled coronal/root surfaces

New for 1993... MORE CHOICES,

Canadian Dentists' Insurance Program

➢ Higher Limits EFFECTIVE JANUARY 1, 1993

- *Long Term Disability Insurance up to ..... $12,000 monthly*
- *Office Overhead Expense up to .....$20,000 monthly*
- *Basic Life Insurance up to $1,000,000*

➢ TripleGuard

A low, package rate for broader office coverage:

- *Office Contents .....$25,000+*
- *Practice Interruption ...No limit*
- *Comprehensive General Liability ..... $2 million*

➢ Data Processing Insurance

All-risk coverage for computer equipment, stored data, software and more, starting at $50.46 annual premium.

➢ Equipment Breakdown

Covers repair or replacement of failed mechanical or electrical equipment, as well as resulting lost income.

..... Only $126.14 a year with TripleGuard,

..... $176.60 without.

EFFECTIVE IMMEDIATELY!
➢ New InstApply Service

Filling in your insurance application is quick and easy with assistance over the phone from a Personal Service Representative at CDSPI.

For more details, call CDSPI TOLL-FREE at

1-800-561-9401

Ext. 236 Western Provinces
Ext. 238 Ontario
Ext. 234 Québec, Maritimes

1-416-296-9401

Metro Toronto

AND MORE SERVICE

CDSPI
CDIP

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

The Modular Dental Management System, EXCEL, is endorsed by CDSPI. For information contact Zadall Systems Group Inc. Telephone 1-800-663-1236

CDA FACT SHEETS

25% Discount for CDA Members

Dental Health: What Seniors Need to Know

"Is there dental care after 65? What's right for me? How should I care for dentures?"

Yes, your older patients have plenty of questions. CDA's Seniors' Fact Sheets help you deliver the answers. This award-winning series of six fact sheets has been created specifically to meet the needs of older patients.

Everyday language and simple, straightforward design ensure these fact sheets are easy to understand. And they're also easy for you to use. Each 8 1/2" X 11" fact sheet comes in a handy tear-off pad of 100 sheets. As little as 6¢ per patient!

1. Do You Know What You're Missing?
The importance of regular dental visits is a topic that needs to be addressed with seniors: Over half of all people 65 and older never visit the dentist. This sheet addresses changes in the mouth, chronic problems, and the benefits of prevention.

2. Essentials for Denture Wearers
The complete story on denture care. Detailed cleaning instructions are presented with the importance of nighttime denture removal and methods for stimulation of oral tissues – and, of course, the importance of regular dental appointments.

3. Dental Care Checklist Tell them to bring a pencil! Patients evaluate their own dental care routine against the eight essential items of the checklist. For those with dentures, natural teeth, or both.

4. Helping Others to Dental Health Useful information for those caring for the disabled. This sheet provides step-by-step instructions on cleaning and caring for the natural teeth, dentures, and mouth tissues of others.

See sample reverse side.

5. Getting the Care You Need A take-charge approach to personal dental health. This sheet shows patients how to establish and maintain healthy dentist/patient relationships. It also helps a patient evaluate his or her current professional care.

6. What Your Mouth Can Tell You Without saying a word! Seven symptoms seniors often ask about are presented with their possible causes:
•bleeding gums •dry mouth •sensitive teeth •red, inflamed mouth •white or red patches, swelling, or sores in mouth or lips •loose teeth •loose, uncomfortable dentures

CDA's Seniors' Fact Sheets:
CDA Member Price $5.98 Regular Price $7.98

Order yours today!
Call the CDA toll-free at 1-800-267-6354.
Or complete and mail the order form below.

CDA PRODUCTS
The Right Stuff . . . Right Now.

CANADIAN DENTAL ASSOCIATION
L'ASSOCIATION DENTAIRE CANADIENNE

Complete and mail to: The Canadian Dental Association, Order Section, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

Name _____
Address _____
City/Town _____ Province _____
Postal Code _____ Telephone ( ) _____
CDA Membership # _____
Cheque/Money Order Enclosed ☐ Visa ☐ MasterCard ☐
Credit Card # _____
Expiry Date _____
Signature _____

Item (Pads of 100 Sheets)	Quantity
1. Do You Know What You're Missing	
2. Essentials for Denture Wearers	
3. Dental Care Checklist	
4. Helping Others to Dental Health	
5. Getting the Care You Need	
6. What Your Mouth Can Tell You	

Seniors' Fact Sheets Pads: Cost: _____ pad(s) X price /pad Member Price: $5.98/pad of 100 sheets Regular Price: $7.98/pad of 100 sheets	
Total Order	$
Shipping	$
Subtotal (Total Order + Shipping)	$
Add 7% GST (#R106845209) to Subtotal	$
Ontario Residents add 8% PST to Subtotal	$
Grand Total	$

Shipping and handling: All orders will be sent by mail with prepaid shipping charges as follows: Orders under $30.00=$4.50; $30.00 to $99.99=$7.00; $100.00 to $250.00=$11.50; over $250.00 call our toll-free number for applicable charges. Allow 4 – 6 weeks for delivery. Make cheque or money order payable to: Canadian Dental Association. Payment must accompany order.

DENTAL HEALTH FACTS
FOR SENIORS

ESSENTIALS FOR DENTURE WEARERS

DENTAL HEALTH
Good For Life

1. Keep dentures clean. Bacterial plaque builds up daily in the mouth and on dentures. Unless it's removed, plaque can cause infection and disease.

CLEANING TIPS:

- Fill the sink halfway with water so your dentures won't break if you drop them.

- Scrub dentures thoroughly. Ask your pharmacist for a special denture brush; its short bristles clean sides and chewing surfaces, and long bristles reach the narrow spaces inside. Soap and water work fine; baking soda removes stains.

- If you have partial dentures, clean their metal clasps carefully. Ask your pharmacist for a stiff, conical "clasp brush."

- If you find denture brushes hard to handle, try a nail brush for better grip.

- Rinse dentures in clear water before replacing them.

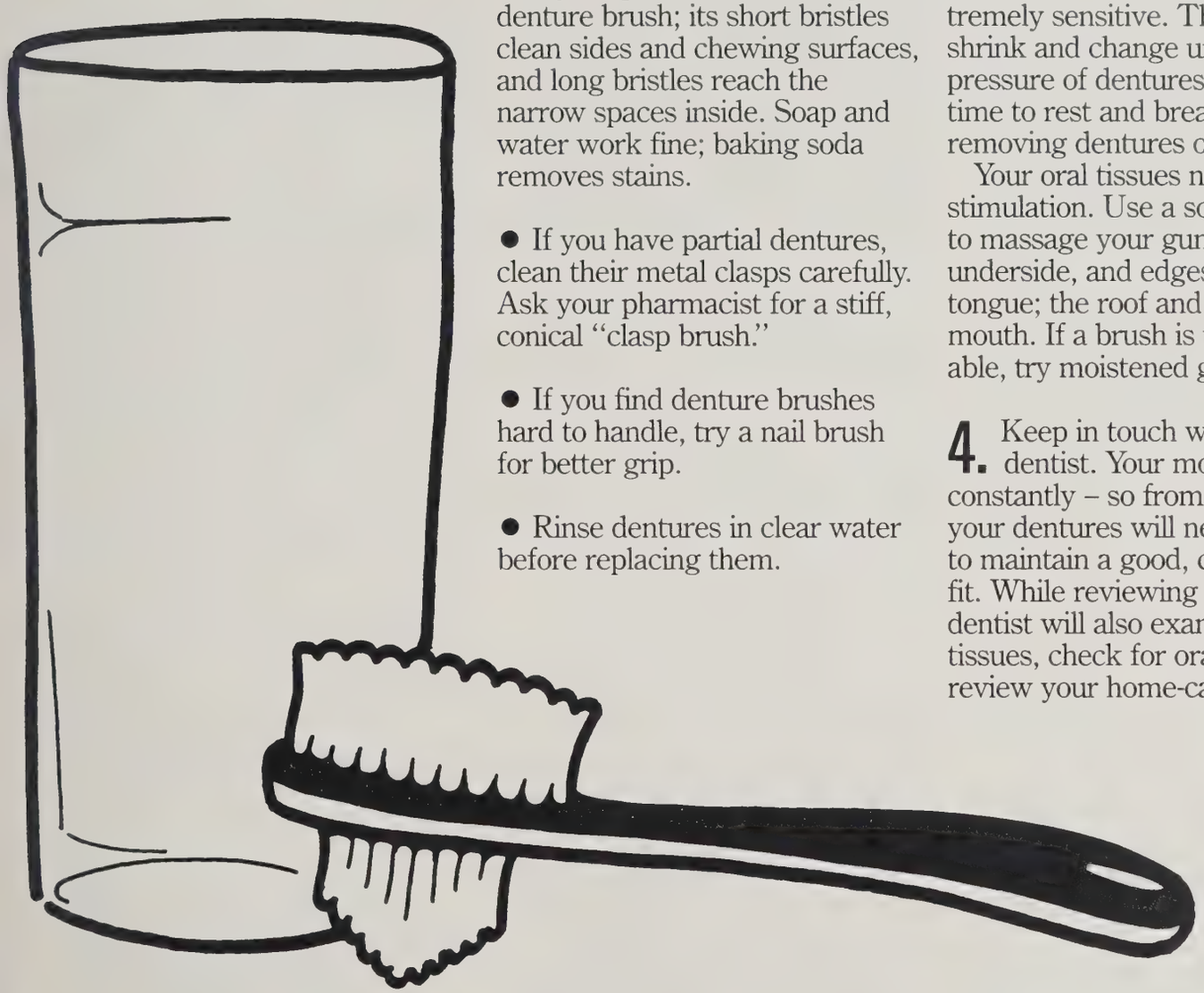
2. At night all dentures, full or partial, should soak in lukewarm water. This takes pressure off your gums and keeps dentures from drying out and warping.

A half-and-half solution of white vinegar and water loosens bacterial deposits so they can be brushed off.

3. Imagine how your feet would feel if you never took off your shoes! Mouth tissues are extremely sensitive. They can shrink and change under the pressure of dentures. Give them time to rest and breathe by removing dentures overnight.

Your oral tissues need daily stimulation. Use a soft toothbrush to massage your gums; the top, underside, and edges of your tongue; the roof and floor of your mouth. If a brush is uncomfortable, try moistened gauze.

4. Keep in touch with your dentist. Your mouth changes constantly – so from time to time, your dentures will need adjusting to maintain a good, comfortable fit. While reviewing the fit, your dentist will also examine your tissues, check for oral cancer, and review your home-care routine.



What a difference a little care makes

Created by the Canadian Dental Association and City of Toronto Department of Public Health.

Quebec has been further addressed by the head of the planning service of the Ministère de la Santé et Services sociaux. Based on data similar to that presented in this paper, a conclusion was made that, at least for the next two decades, there would be no surplus of dentists in Quebec.[33]

Conclusion

The evidence supports a conclusion that there will be an increased need for dental services in the future. The number of hours required to treat the unmet oral health care needs of the Canadian population has been reported to be in the millions.[23] Changing disease patterns, interacting with the increasing number of adults in older age groups who have greater numbers of teeth at risk, will increase the need for dental services. Furthermore, the demand for these services is not likely to decline in the future if the experience of the past is an indicator. Per capita dental expenditures in Canada increased threefold in the period between 1960 and 1980.[23] In the United States, similar increases have been recorded.[34] Based on 1990 data, a model used to assess the need for dental services forecasts an increase in demand resulting from the demographic changes discussed in this paper, an increase in third party payment and, despite the current downturn, a modest increase in economic growth.[35] It should be further noted that the aging cohort of baby boomers are more educated and will have more resources available for maintaining their oral health,[36] two factors implicated in the demand for services.

It is clear that there is no "well-documented decline of the need for dentists." Rather, the opposite may be the case. Current policies on manpower should be based on the data available on the spectrum of factors that will contribute to manpower needs. These should be monitored and adjusted on a regular basis. The future health of the populations of Canada and Quebec is at stake.

Dr. Ivan Stangel *is an associate professor in the division of prosthodontics, section of operative dentistry, and director of continuing education with the faculty of dentistry, McGill University.*

Reprint requests to **Dr. Stangel**, *Faculty of Dentistry, McGill University, 740 Dr. Penfield, Montreal, Qc H3A 1A4.*

References

1. Manpower Project, Report No. 2, American Association of Dental Schools Manpower Committee, 1989.
2. Report of the Workgroup on Academic Units, McGill University, 1991.
3. Rapport du comité chargé d'etudier l'ensemble des elements relié à la question du contingentement. Association des chirurgiens dentistes du Québec, 1987.
4. Les effectifs dentaires au Québec. Etude effectueé par la comitée d'expertises professionnelles de l'Ordre des Dentistes du Québec, 1987.
5. Transactions of the Canadian Dental Association. Professional Resource Utilization Committee: Report to the 1987 Interim CDA Board of Governors, 1987.
6. Annual Report on Dental Education, American Dental Association. Department of Educational Surveys, ADA, Chicago, Ill., 1992.
7. Douglass, C.W. and Furino, A. Balancing dental service requirements and supplies: epidemiologic and demographic evidence. *JADA* 121:587-592, 1990.
8. Sondage auprès de la population dentaire du Québec. Ordre des Dentistes du Québec, 1991.
9. Brodeur, J.M., Naccache, H., Simard, P.L. et al. Quebec dental manpower and demand for dental care from 1985-1988. *J Canad Dent Assoc* 56:773-776, 1990.
10. House, R.K. Estimating future dental care requirements: the implications for dental manpower. *J Canad Dent Assoc* 53:99-105, 1987.
11. Lewis, D.W. Dental manpower supply and demand projections and changing demography and dental disease. *J Canad Dent Assoc* 52:33-40, 1986.
12. Personal communication. Swedish Consul, 1991.
13. Statistics Canada. Censuses of Canada and Projection 4. Catalogue No. 91-520. Ottawa, 1985.
14. Statistics Canada. Intercensal annual estimates of population by age and sex, for Canada, Provinces and the Territories, 1981-1985. Catalogue No. 91-518, 1988.
15. Mjor, I.A. Dentistry in the 21st century with emphasis on operative dentistry. In: *Dentistry in the 21st Century: A Global Perspective.* Quintessence Publishing Co., Chicago, pp. 200-202, 1991.
16. Tubingen, H.W. Dentistry in the 21st century — a German view. In: *Dentistry in the 21st Century: A Global Perspective.* Quintessence Publishing Co., Chicago, pp.191-194, 1991.
17. Slavicek, R. Dentistry in the 21st century: Austria. In: *Dentistry in the 21st Century: A Global Perspective.* Quintessence Publishing Co., Chicago, pp. 92-100, 1991.
18. Miller et al. Oral Health of United States Adults. The national survey of oral health in U.S. employed adults and seniors 1985-1986. U.S. Department of Health and Human Services, NIH Publication No. 87-2868, 1987.
19. Rheinhardt, J.W. and Douglass, C.W. The need for operative dentistry services: projecting the effect of changing disease patterns. *Operative Dent* 14:114-120, 1989.
20. Locker et al. The oral health status of older adults in four Ontario communities. *J Canad Dent Assoc* 57:727-732, 1991.
21. Effects and Side Effects of Dental Restorative Materials. National Institutes of Health Technology Assessment Conference, 1991.
22. Payette, M., Brodeur, J.M., Lepage, Y. et al. Decrease in dental caries between 1977 and 1990 among Quebec children aged 7-17. *J Dent Res* (Special Issue) 71:128 (Abstract #179), 1992.
23. Douglass, C.W. and Gammon, M.D. The future need for dental treatment in Canada. *J Canad Dent Assoc* 51:583-590, 1985.
24. Rheinhardt, J.W., Capilutto, M.L. and Padgett, C.E. New England composite resin esthetic dentistry survey. *J Dent Res* (Special Issue) 68:182 (Abstract # 1), 1989.
25. Hand, J.S., Hunt, R.J. and Beck, R.D. Incidence of coronal and root caries in an older adult population. *J Public Health Dent* 48:14-19, 1988.
26. Meskin, L.H. et al. Patterns of tooth loss and accumulated prosthetic treatment potential in U.S. employed adults and seniors. *Gerodontics* 12:126-135, 1986.
27. Douglass, C.W., Gammon, M.D. and Atwood, D.A. Need and effective demand for prosthodontic treatment. *J Prosthet Dent* 59:94-104, 1988.
28. Chin Quee, T. Need for treatment — implications for disease trends. *J Canad Dent Assoc* 51:591-592, 1985.
29. Personal communication. National Dental Examining Board, 1991.
30. Personal communication. Ordre des Dentists du Québec, 1991.
31. Zarb, G.A. 21st century dentistry in Canada. In: *Dentistry in the 21st Century: A Global Perspective.* Quintessence Publishing Co., Chicago, p. 131, 1991.
32. Data supplied by the admissions office, faculty of dentistry and graduate's society office, McGill University, 1991.
33. Communication, Ministère de la Santé et Services sociaux, Québec, 1990.
34. Furino, A. and Douglass, C.W. Balancing dental service requirements and supplies: the economic evidence. *JADA* 121:685-692, 1990.
35. U.S. Department of Health and Human Services. Seventh Report to the President and Congress on the Status of Health Personnel. USPHS, Rockville, Md, 1991.
36. Mjor, I.A. Dentistry in the 21st century with emphasis on operative dentistry. In: *Dentistry in the 21st Century: A Global Perspective.* Quintessence Publishing Co., Chicago, pp. 200-202, 1991.

Caractéristiques cliniques affectant le besoin de regarnissage des pièces de prothèses amovibles de classe 1 et 2 à la mandibule

Lynda Nicholson, DMD, M.Sc.
Fernand Turcotte, MD, MPH, FRCPC
Ste-Foy, Qué.

SOMMAIRE

La présente étude tente d'identifier l'ampleur des besoins en regarnissage et les facteurs qui les déterminent à partir d'un échantillon de personnes dotées d'une pièce de prothèse dentaire amovible de classe 1 ou 2 à la mandibule. Des méthodes épidémiologiques furent utilisées pour résoudre ce problème. Les besoins en regarnissage des appareils augmentent avec la durée écoulée depuis l'installation de la prothèse en bouche (p = 0.014). Quant aux autres facteurs étudiés, à savoir la classe de l'appareil, le type de reteneurs utilisés pour l'appareil, et l'occlusion, on a identifié des tendances plutôt que de véritables facteurs de risque étant donné que la puissance de l'étude était considérablement réduite par la faiblesse des effectifs qui ont pu être recrutés ce qui ne permettait pas de toujours vérifier la signification statistique des associations observées. En pratique clinique, la présentation d'un plan de traitement devrait comprendre l'évaluation périodique planifiée du besoin de regarnissage. Comme il est pour l'instant impossible d'établir le moment approximatif où le regarnissage sera nécessaire, il convient de revoir périodiquement et régulièrement les patients dotés de prothèse.

ABSTRACT

This study attempts to identify, from a sample of people wearing a class 1 or 2 removable prosthetic device on the lower jaw, the extent of the relining needs for these prostheses and their determining factors. Epidemiological methods were used to solve this problem. The relining needs increase with the amount of time elapsed since the prosthetic device was put in the mouth (p = 0.014). As for the other factors reviewed, i.e. class of device, type of retainers used, and occlusion, the authors have identified trends instead of real risk factors, since the impact of this study was significantly reduced due to the small number of people we were able to recruit. It was not always possible, therefore, to verify the statistical meaning of the associations observed. In clinical practice, the treatment plan should include a periodical evaluation of the relining needs. As it is now impossible to establish the approximate time when a prosthetic device may need relining, patients wearing one should be examined periodically and regularly.

I. Introduction

L'objectif général de cette recherche est de déterminer la proportion des prothèses qui ont besoin de regarnissage, dans un groupe de personnes qui ont été traitées dans une clinique universitaire de prothèse dentaire.

La réalisation de l'objectif général suppose qu'il est possible de:

a) Identifier la proportion des prothèses qui ont besoin de regarnissage chez les porteurs d'une pièce de prothèse amovible de classe 1 à la mandibule.

b) Identifier la proportion des prothèses qui ont besoin de regarnissage chez les porteurs d'une pièce de prothèse amovible de classe 2 à la mandibule.

c) Comparer les proportions mesurées dans les deux groupes de patients. La possibilité de comparer l'évolution dans le temps des proportions des prothèses ayant besoin d'un regarnissage, compte tenu du rôle joué par le temps écoulé depuis la mise en bouche de la pièce de prothèse amovible, ajouterait un intérêt certain aux résultats.

Parmi les hypothèses sous jacentes à cette recherche, il s'en trouve trois qui requièrent d'être explicitées:

a) Le nombre de prothèses partielles amovibles de la mandibule des classes 1 et 2 qui ont besoin de regarnissage augmente avec la durée depuis la mise en bouche de l'appareil.

b) La fréquence de regarnissage des pièces de prothèses amovibles est moindre pour les appareils de la classe 2 que pour ceux de la classe 1.

c) La proportion des prothèses qui ont besoin de regarnissage est aussi fonction du type de reteneurs directs utilisés, de la classe de l'appareil et de l'occlusion à l'arcade opposée.

2. Méthodes

Les participants de l'étude ont été recrutés parmi les patients traités à l'École de médecine dentaire de l'Université Laval entre le 1 janvier 1978 et le 31 décembre 1989, soit une période de 11 ans. Pour être éligibles à l'étude, les patients devaient être porteurs d'une prothèse complète ou partielle et amovible de classe 1 au maxillaire supérieur. De plus, cette prothèse devait se retrouver en opposition à une prothèse partielle amovible de classe 1 ou 2 à la mandibule. Selon la classification de Kennedy-Applegate, la prothèse

The Dawn of a New Era in Patient Education

Did You Miss It?

Patient Education For The Nineties

October 1991 marked the dawn of a new era in patient education. The signal event? The launch of CDA's Dental Information System.

Every dentist in Canada received a brochure that introduced the system: what it is, how it works, and how it can work for you.

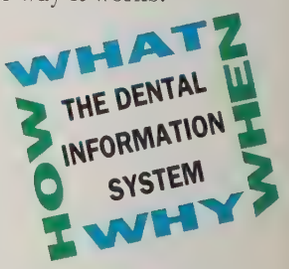
Hundreds have already contacted CDA for more information or to place their initial order. Here's your opportunity.

The Dental Information System is patient education for the Nineties. It's what dentists told us they needed. What patients told us they wanted. It is dental information redefined: the way it looks, the way it's organized, the way it's read, the way it works.

And it's available now.

Call CDA Toll-Free Today

You can order individual booklets, the whole series, or the custom designed display rack. CDA members save 25% on everything.



The Dental Information System: clear, comprehensive, useful and friendly

•8 booklets, 12 pages each (5" X 8") •rigorously reviewed by dental experts •wide range of topics

•easy access indexing system •boxes, charts and photography that make information lively

•custom designed plexiglass rack (24" X 24" square)

CANADIAN DENTAL ASSOCIATION

L'ASSOCIATION DENTAIRE CANADIENNE

Call: 1-800-267-6354

Colgate™

The Dental Information System has been made possible through the generous assistance of Colgate Palmolive.

de classe 1 comprend deux espaces édentés bilatéraux et postérieurs aux dents restantes, tandis que la prothèse de classe 2 comprend un espace édenté unilatéral et postérieur aux dents restantes.

L'idée d'exploiter et d'analyser l'expérience accumulée par un groupe de patients à qui des prothèses ont été adaptées par un même groupe de professionnels n'est peut-être pas réalisable ailleurs que dans une clinique universitaire, où les quantités de patients accessibles sont plus faciles à concilier avec les exigences relatives à la puissance des études d'observation. Dans les sciences de la santé, c'est l'épidémiologie qui a codifié les méthodes requises et adaptées à l'étude par observation des maladies chez l'humain. Aussi nous a-t-il semblé intéressant d'utiliser, pour une première fois à notre connaissance dans le domaine des prothèses dentaires, des méthodes épidémiologiques qui viennent compléter le travail des cliniciens.

Près de deux mille dossiers de patients ayant fréquenté la clinique de l'École de médecine dentaire de l'Université Laval, ont été revisés par l'auteure et une assistante de recherche, à l'aide d'une grille dans laquelle étaient regroupés les critères d'éligibilité retenus pour l'étude. Les dossiers revisés suggéraient que 212 personnes étaient probablement éligibles. Toutes ces personnes ont été invitées à participer mais on n'a pu rejoindre que 180 parmi elles. Dès ce premier contact pendant lequel les objectifs de l'étude ainsi que les avantages qui pouvaient en découler pour les participants étaient expliqués, 35 personnes ont refusé de collaborer tandis que 47 autres qui avaient préalablement signifié leur accord, se sont par la suite désistées au moment où il a fallu convenir du moment de leur rendez-vous à la clinique dentaire pour procéder à leur examen.

C'est donc dire que parmi les 212 personnes estimées éligibles, on a pu en retracer 85 p. cent et parmi celles-ci, 98 ont accepté de collaborer pour un taux de participation de 54 p. cent. En cours d'étude, neuf personnes ont été retirées parce que ne satisfaisant pas à tous les critères d'éligibilité, la plupart ayant cessé de porter leur prothèse, l'ayant perdue ou brisée de sorte que les résultats présentés font état des observations colligées auprès de 89 patients qui comptent pour 49 p. cent de la population éligible.

L'examen clinique des participants a été réalisé entre le 1er décembre 1990 et le 30 avril 1991 à l'École de médecine dentaire. Le même dentiste a fait tous les examens. Pour chaque patient, on a collecté plusieurs sortes d'informations:

a) Des informations relatives aux prothèses obtenues à partir des dossiers cliniques conservés à la clinique de l'Université. Ces informations ont été extraites avec une grille standardisée par une assistante de recherche, entraînée et supervisée par le dentiste-chercheur. L'assistante de recherche reproduisait aussi le dessin des prothèses sur des diagrammes conçus à cette fin.

b) Des informations décrivant l'efficacité masticatoire courante ont été recueillies par questionnaire. Ce questionnaire a été élaboré, validé et normalisé par James L. Leake. Une assistante de recherche recueillait et enregistrait les informations dans une entrevue avec les patients.

c) Les informations requises pour l'évaluation de la prothèse et pour l'examen clinique apparaissent dans le protocole. Pour l'évaluation de la prothèse et pour l'examen clinique, le dentiste examinateur devait s'en tenir à ce protocole d'examen, qui devait être appliqué d'une manière uniforme, à tous les patients.

Pour chaque patient, à partir des informations recueillies, un dossier a été constitué sur un support informatique. L'exploitation des données et l'analyse statistique ont été réalisées avec le logiciel SAS sur les équipements du Centre de Traitement de l'Information de l'Université Laval.

3. Variables

Pour les fins de l'étude, on a utilisé les variables suivantes:

1) la variable dépendante: le besoin ou non de regarnissage des appareils amovibles de classe 1 ou 2 à la mandibule. Le regarnissage d'un appareil amovible consiste à combler l'espace entre l'intrados de l'appareil et la surface des tissus suite aux changements survenus au niveau des tissus de support. La nécessité de procéder au regarnissage d'une selle libre ou d'une extension distale est déterminée par l'évaluation de la stabilité et de l'occlusion à des intervalles «raisonnables» après le placement initial de la pièce de prothèse. Les indications sont décrites de façon détaillée à l'Annexe A.

2) les variables indépendantes

- de personnes: âge - sexe
- de l'état dentaire: le type d'édentation à la mandibule et l'occlusion à l'arcade opposée
- des appareils: durée depuis la mise en bouche, le type d'appareil et la classe des reteneurs directs

Le type d'édentation à la mandibule a été défini avec la Classification des crêtes partiellement édentées de Kennedy Applegate. Pour les besoins de l'étude les classes 1 et 2 requièrent d'être définies. Dans la classe 1 on place les espaces édentés bilatéraux et postérieurs aux dents restantes tandis que dans la classe 2, on groupe les espaces édentés unilatéraux et postérieurs aux dents restantes.

En ce qui regarde l'occlusion à l'arcade opposée, les participants devaient être complètement édentés ou avoir une classe 1 d'édentation selon la classification des crêtes partiellement édentées de Kennedy-Applegate.

La durée depuis la mise en bouche a été établie de la façon suivante: à partir des dossiers, le mois et l'année de la mise en bouche ou du dernier regarnissage étaient notés. La durée depuis la mise en bouche ou depuis le dernier regarnissage était donc égale à la différence entre le mois de l'examen et le mois de la mise en bouche ou du regarnissage. Les durées, mesurées en mois, ont par la suite été réparties dans les 3 classes suivantes: 24 mois, 25-59 mois, 60 mois et plus.

Pour définir et classer les appareils à la mandibule, on a utilisé la Classification de Kennedy Applegate.

Le terme de reteneur direct décrit le crochet utilisé pour aider à la rétention de l'appareil amovible en bouche. Dans la présente étude le système RPI, le système RPA et les autres reteneurs constituent les 3 catégories retenues. Les systèmes RPI et RPA ont déjà été décrits. Dans la troisième catégorie on regroupe les reteneurs circonférentiels (appui distal, bras Aker rétentif et bras réciproque horizontal) et les circonférentiels façonnés, ceux-ci ayant le même dessin que les circonférentiels à la différence qu'ils sont façonnés plutôt que coulés.

4. Analyse

Le plan d'analyse comprend deux parties, l'une à visée descriptive et l'autre à visée analytique. Dans la première, les observations ont été regroupées de manière à faire ressortir les tendances centrales des variables continues ou bien la répartition de sujets selon les variables catégoriques. Les répartitions sont présentées dans des

TABLEAU I:

Répartition des participants, par âge et par sexe (N=89)

Variables	Classes	Effectifs	Pourcentage
Sexe	hommes	56	62,9
	femmes	33	37,1
Age	<39 ans	11	12,4
	40-49 ans	23	25,8
	50-59 ans	28	31,5
	60 ans et plus	27	30,3

tableaux à fréquences croisées et la signification statistique des écarts obtenus a été vérifiée quand c'était pertinent. Quand la répartition des observations dans les tableaux à fréquences croisées laissait des effectifs insuffisants dans certaines strates, on a procédé à des analyses unies et multivariées, dans lesquelles des rapports de cotes ont été calculés en utilisant la durée 24 mois, le système RPI, la classe 2 d'appareil amovible à la mandibule et l'édentation complète au maxillaire supérieur comme critères de comparaison. L'utilisation de ces systèmes comme valeurs de référence ou critères de comparaison permet de surmonter la difficulté qui se trouve posée par l'absence d'un groupe de comparaison. La durée 24 mois nous a semblé appropriée puisque les changements au niveau des tissus de support sont négligeables pendant cette période. Comme le système RPI est devenu le point de référence en matière de définition des réponses qu'il convient d'apporter aux problèmes de prothèses dentaires de classe 1 et 2, il nous a semblé que ce système peut constituer un critère de comparaison qui soit approprié dans les circonstances. Quant aux appareils de classe 2, comme il n'y a qu'une extension distale, et qu'il est probable qu'elle reste plus stable, pour cette raison, on les a regroupés dans une classe distincte. Quant à l'occlusion à l'arcade opposée, la prothèse complète est celle qui développe moins de force et est donc moins susceptible de provoquer des changements à la mandibule.

La partie de l'analyse qui porte sur les facteurs qui influencent le besoin en regarnissage a été menée avec des analyses de régression logistique dans le but d'identifier la contribution de certains facteurs qui présentent un intérêt pratique pour le clinicien.

5. Résultats

5.1 Caractéristiques cliniques, démographiques et fonctionnelles des participants

Au total, 89 sujets ont été retenus pour participer à l'étude. Parmi ceux-ci on comptait 56 hommes et 33 femmes. A l'examen d'entrée dans l'étude, la majorité des individus étaient âgés entre 40 et 59 ans, 11 avaient moins de 40 ans et 27 plus de 60 ans (**tableau I**). Soixante-quinze, soit 80 p. cent étaient porteurs d'une prothèse complète au maxillaire supérieur alors que 14 étaient porteurs d'une prothèse partielle amovible de classe 1. Soixante-quatorze étaient porteurs d'une prothèse partielle amovible de classe 1 au mandibule alors que 15 avaient une prothèse partielle amovible de classe 2 (**tableau II**).

5.2 Caractéristiques cliniques des prothèses partielles portées à la mandibule

De l'ensemble des participants à l'étude, 38 avaient une prothèse dotée d'un RPI ou d'un dérivé comme reteneur direct sur les dents piliers, 33 une prothèse dotée d'un RPA et 18 d'un circonférentiel façonné ou circonférentiel (**tableau III**). Quant à la durée écoulée depuis la mise en bouche ou depuis le dernier regarnissage, 42 individus, soit près de la moitié du groupe étudié, comptaient une durée de 60 mois et plus alors que 25 comptaient entre 25 et 59 mois, et 22, 24 mois et moins (**tableau IV**).

TABLEAU II:

Répartition des participants selon certaines caractéristiques cliniques

Variables	Effectifs	Pourcentage
A) Prothèse du maxillaire supérieur Prothèse complète	75	84,3
Classe 1	14	15,7
B) Prothèse du maxillaire inférieur Classe 1	74	83,1
Classe 2	15	16,9

TABLEAU III:

Répartition des participants selon le type de reteneurs directs utilisé sur leur prothèse

Variables	Effectifs	Pourcentage
Reteneurs du système RPI et dérivés	38	42,7
Reteneurs du système RPA	33	37,1
Autres reteneurs directs	18	20,2

TABLEAU IV:

Répartition des participants selon la durée écoulée depuis la mise en bouche de la prothèse ou depuis son dernier regarnissage

Variables	Effectifs	Pourcentage
≤ 24 mois	22	24,7
25-59 mois	25	28,1
60 mois et plus	42	47,2

TABLEAU V:

Répartition des participants selon qu'ils requièrent ou pas un regarnissage de leur prothèse

Variables	Regarnissage nécessaire	Effectifs	Pourcentage
Regarnissage	oui	47	52,8
	non	42	47,2

TABLEAU VI:

Répartition des participants selon leur besoin en regarnissage et la classe de la prothèse partielle amovible à la mandibule

Variable	Regarnissage nécessaire	Effectifs	Pourcentage
Prothèse de Classe 1	oui	40	54,1
	non	34	45,9
Prothèse de Classe 2	oui	7	46,7
	non	8	53,3

5.3 Répartition des participants dont la prothèse requiert un regarnissage selon certaines variables indépendantes

Dans le **tableau V** sont répartis les participants selon qu'ils requièrent ou pas le regarnissage de leurs prothèses. Lors de l'examen la prothèse requiert un regarnissage pour 47 participants.

Quant au **tableau VI**, il reprend les mêmes données tout en les segmentant selon qu'il s'agit d'une prothèse partielle amovible de classe 1 ou de classe 2 à la mandibule. Le rapport de cotes (RC) ainsi obtenu est de 1,34 avec un chi carré (X^2) égal à 0,273 pour 1 degré de liberté (ddl) ce qui correspond à un p de 0,6012, ce qui suggère que le besoin de regarnissage n'est pas associé à la classe de la prothèse.

Les données présentées dans le **tableau VII** permettent un premier examen de l'association qui existe entre la durée d'utilisation de la prothèse et la proportion de participants dont la prothèse requiert un regarnissage. Pour les fins de cette analyse, les durées d'utilisation ont été regroupées dans les 3 catégories suivantes: 24 mois, 25-59 mois, 60 mois et plus. La signification statique de l'association entre ces deux variables a été vérifiée avec un test de chi carré: X^2 = 8,477 avec 2 ddl, ce qui correspond à une valeur p de 0,0144. Et si on pratique un test de tendance, la variable durée doit alors être traitée en variable continue. Pour les fins de notre analyse les valeurs 1 année, 3, 5 et 7 ans ont été retenues. Le X^2 de tendance a comme valeur approximative 7,72 ce qui avec 1 ddl ce qui correspond à une valeur p de 0,005.

Le **tableau VIII** reproduit la répartition du **tableau VII**, en stratifiant les participants selon la classe de prothèse à la mandibule. La tendance de l'association durée d'utilisation — nécessité du regarnissage se maintient après stratification pour la classe de la prothèse. Des périodes d'une durée de 12 mois, 24 mois, 60 mois et 84 mois...ont été utilisées pour calculer le X^2 de tendance. En ce qui concerne les prothèses de la classe 1, le X^2 tendance vaut 4,07 avec 1 ddl, ce qui correspond à une valeur p de 0,044. La même observation s'applique pour les prothèses de la classe 2, à savoir que la tendance se maintient, bien que cette fois l'application du X^2 tendance soit plus délicate en raison de la faiblesse des effectifs dans certaines classes. Le X^2 tendance est égal à 5,92 avec 1 ddl, ce qui correspond à une valeur p de 0,015.

Au **tableau IX**, l'influence de la variable «Reteneurs directs» sur le besoin en regarnissage est étudiée. L'association entre les deux variables n'est pas forte puisque le X^2 obtenu est égal à 2,60 pour une valeur de p = 0,27. Au **tableau X**, l'association entre l'occlusion à l'arcade opposée et le besoin de regarnissage, est étudiée. Pour ces deux variables, l'association a été estimée avec un rapport de cotes pour lequel le groupe de référence est composé des patients dotés de prothèses complètes. On se rappellera que les prothèses complètes au maxillaire supérieur sont sensées développer moins de forces mécaniques pendant la mastication et ainsi provoquer moins de changements dans les tissus de support de l'arcade opposée. Le RC est égal à 0,81. Quant à la valeur du X^2elle est égale à 0,004 pour un p = 0,95. On ne peut conclure à une association étroite.

5.4 Facteurs déterminants le besoin en regarnissage

Cette étude a été construite autour des informations les plus couramment utilisées par le clinicien qui doit réhabiliter une édentation partielle. La longévité de la pièce en bouche, la qualité de l'occlusion, le type de reteneurs directs et la classe d'édentation sont les éléments dont le choix détermine la qualité de la solution qu'il adoptera. Cette partie de l'analyse tente donc

d'élucider la contribution propre à chacun de ces éléments. Comme l'analyse stratifiée ne permettait pas toujours, dans cette étude, de vérifier validement certaines hypothèses surtout en raison du nombre insuffisant de sujets dans certaines strates, on a contourné cette difficulté en faisant des analyses univariées puis, multivariées. Cette stratégie est susceptible de mettre en évidence d'autres facteurs qui auraient de l'influence sur les besoins en regarnissage. C'est ainsi qu'on a introduit la durée écoulée depuis la mise en bouche de la prothèse, la classe d'appareil amovible, le type de reteneur direct et le type d'occlusion à l'arcade opposée tour-à-tour dans des analyses unies puis multivariées.

Selon les analyses univariées, la classe d'appareil n'a pas d'influence sur le besoin en regarnissage (RC = 1.34, p = .6020) tandis que la durée écoulée depuis la mise en bouche est, elle, associée au besoin en regarnissage. La valeur du rapport de cotes augmente avec la longueur de la période écoulée depuis le début de la mise en bouche et devient statistiquement significative pour la période de plus de 60 mois. Et pour cette longueur de la durée de la mise en bouche, la valeur du RC est égale à 3.90 (p = 0,0141) relativement à une durée moindre de 24 mois.

Par suite de ces résultats, on a transformé la durée de la mise en bouche qui était une variable continue en une variable dichotomique; durée de mise en bouche moindre et plus grande que 60 mois. On obtient alors le RC suivant: 3.60 (p = 0.0057) qui suggère une association forte. Pour faire ressortir l'effet du type de reteneur, on a utilisé le système RPI comme valeur de référence et obtenu un RC= 2.16 (p = .1136) pour le système RPA et un RC = 1.24 (p= .7124) pour les autres systèmes de reteneurs. Ces rapports de cotes ne suggèrent pas que le type de reteneur ait de l'influence sur le besoin en regarnissage. Et pour vérifier si l'occlusion à l'arcade opposée, avec la prothèse complète ou une prothèse partielle amovible de classe 1, avait de l'influence, on a calculé un RC, la prothèse complète servant de critère de référence, et obtenu un RC = 1.23 (p = .7237) ce qui suggère qu'il n'y a pas d'association.

Pour réaliser les analyses multivariées, la durée fut donc transformée en variable dichotomique de part et d'autre de la durée 60 mois puisqu'il n'y avait pas de différence significative entre les deux catégories intermédiaires (moins de 25 mois et 25 à 59 mois).

TABLEAU VII:

Répartition des participants selon leurs besoins en regarnissage et la durée d'utilisation de leur prothèse

Variable	Regarnissage	Effectifs	Pourcentage
≤ 24 mois	oui	8	36,4
	non	14	63,6
25-59 mois	oui	10	40,0
	non	15	60,0
60 mois et plus	oui	29	69,1
	non	13	30,9

TABLEAU VIII:

Répartition des participants selon leurs besoins en regarnissage, la classe de prothèses à la mandibule et leur durée d'utilisation

A) Prothèses de classe 1

Variable	Regarnissage nécessaire	Effectifs	Pourcentage
≤ 24 mois	oui	8	42,1
	non	11	57,9
25-59 mois	oui	9	42,9
	non	12	57,1
60 mois et plus	oui	23	67,6
	non	11	32,4

B) Prothèses de classe 2

Variable	Regarnissage nécessaire	Effectifs	Pourcentage
≤ 24 mois	oui	0	
	non	3	100,0
25-59 mois	oui	1	25,0
	non	3	75,0
60 mois et plus	oui	6	75,0
	non	2	25,0

Quant au choix du modèle on a accordé la préséance aux considérations cliniques plutôt que statistiques. Ainsi le modèle qui a été retenu a été construit comme ceci:

$$\log \frac{p}{1-p} = a + X1 \text{ durée depuis la mise en bouche} + X2 \text{ reteneurs directs} + X^3 \text{ classe d'édentation} + X_4 \text{ occlusion arcade opposée}$$

dans lequel p est la proportion des appareils nécessitant un regarnissage. Les autres variables qu'on a introduites sont la durée écoulée depuis la mise en bouche de l'appareil, la variété des reteneurs directs, la classe d'édentation et l'occlusion à l'arcade opposée, de la même façon que chacune de ces variables a déjà été décrite à la section 5.

6. Discussion

Bien que la rareté des effectifs recrutés dans certaines cellules réduise la puissance de l'étude ce qui empêche de mener à son terme l'analyse de l'influence de certaines variables sur le besoin en regarnissage, des observations d'intérêt pour la pratique clinique ressortent déjà: ainsi la proportion des prothèses nécessitant un regarnissage augmente avec la durée écoulée depuis la mise en bouche. Pour les durées moindres que 24 mois, intervalle pendant lequel il survient moins de changement, il serait souhaitable, lors de la poursuite de nos travaux, de distinguer entre une pièce de prothèse initiale et une pièce de remplacement. Dans la littérature dentaire on rapporte que ces changements surviennent plus tôt dans le cas d'une première prothèse partielle. L'hypothèse par contre selon laquelle le besoin en regarnissage pour les pièces de prothèse partielle amovible de classe 1 et 2 à la mandibule est déterminé par le nombre de mois en bouche de ces pièces ne peut être rejetée, le RC pour une durée plus grande que 60 mois étant égal à 3,83; p = 0.044 selon le modèle de régression logistique retenu (**tableau XI**).

On n'a par ailleurs pas pu vérifier si la différence de structure des prothèses de la classe 1 et de la classe 2 exerce une influence sur le besoin en regarnissage (RC = 1,34, p = 0.6020). Bien que les effectifs étudiés soient insuffisants pour vérifier l'hypothèse d'une manière définitive, on a pu mettre en évidence une tendance qui est consonnante avec l'hypothèse. Selon l'analyse, les prothèses de la classe 1 tendent à requérir un regarnissage plus fréquemment que les prothèses de la classe 2, RC= 1,34 pour un p = 0,81 (**tableau VI**). Quant à l'influence de la classe d'édentation ou bien celle de la variété des reteneurs directs ou bien encore celle de l'occlusion à l'arcade opposée, on n'a pas pu les mettre en évidence, toujours parce qu'on n'a pas pu réunir suffisamment d'observations. Le besoin en regarnissage est 3.83 fois plus fréquent pour les prothèses utilisées depuis 60 mois et plus.

On pourrait résumer l'influence des autres facteurs étudiés dans le modèle d'analyse de la manière suivante:

TABLEAU IX:

Répartition des participants selon le besoin en regarnissage et le type de reteneur direct de leur prothèse

Variable	Regarnissage nécessaire	Effectifs	Pourcentage
Reteneurs du système R.P.I.	oui	17	44,7
	non	21	55,3
Reteneurs du système R.P.A.	oui	21	63,6
	non	12	36,4
Autres reteneurs directs	oui	9	50,0
	non	9	50,0

TABLEAU X:

Répartition des participants selon le besoin en regarnissage et l'occlusion à l'arcade opposée.

Variable	Regarnissage nécessaire	Effectifs	Pourcentage
Prothèse complète (maxillaire supérieur)	oui	39	52,0
	non	36	48,0
Prothèse classe 1 (maxillaire supérieur)	oui	8	57,1
	non	6	42,9

TABLEAU XI:

Interaction de certaines variables cliniques avec le regarnissage

Modèle	ß	SE ß	R.C.	p
durée	1.3435	0.4719	3.83	0.044
R.P.A.	0.7025	0.5184	2.02	0.1754
autres reteneurs	-0.0607	0.6189	0.94	0.9218
classe 1	0.4440	0.6161	1.56	0.4712
occlusion classe 1	0.4667	0.6312	1.59	0.4597

a) quand les prothèses sont dotées de reteneurs du système RPA, le besoin en regarnissage est 2.02 fois plus fréquent que pour les prothèses conçues selon le système RPI tandis que pour les prothèses dotées d'autres reteneurs, le RC de 0.94 suggère une influence encore moindre de ce facteur sur les besoins de regarnissage;

b) Pour les prothèses de classe 1, le besoin en regarnissage est 1.56 fois plus fréquent que ce n'est le cas pour les prothèses de classe 2 mais ce RC n'est pas significatif;

c) Enfin, selon la qualité de l'occlusion à l'arcade opposée, le besoin en regarnissage est 1.59 fois plus fréquent pour les prothèses partielles que pour les prothèses complètes.

Il convient maintenant d'examiner les facteurs susceptibles d'affecter la validité interne de l'étude, comme les biais de sélection, les biais d'information et d'autres sources de confondance. La population de l'étude a été sélectionnée à partir de toute la clientèle qui a fréquenté la clinique depuis son ouverture et qui satisfaisait aux critères d'éligibilité. Bien que le statut socio-économique de la clientèle d'une clinique universitaire soit souvent modeste, cette particularité n'est pas importante pour les soins dentaires en prothèse amovible; il en serait autrement s'il s'agissait de travaux de réhabilitation buccale plus extensifs. Il est peu probable que le taux de réponse de 54 p. cent invalide les résultats. Le désir de participer à cette étude, le volontariat, peut par un phénomène d'autosélection entraîner un biais de sélection. Toutefois les raisons qui ont déterminé leur participation ne semblent pas reliées à l'objet de l'étude. La population de l'étude nous semble représentative de la population totale des personnes éligibles. Quant à la collecte des données, elle fut réalisée à partir d'un questionnaire standardisé et administré par la même assistante de recherche tout au long de l'étude, deux méthodes qui réduisent l'effet des biais d'information. Comme l'examen clinique fut effectué par le même dentiste chercheur, la variabilité intra-observateur dans l'établissement du besoin en regarnissage, qui n'a pas été mesurée, produit une erreur non différentielle de classification qui donne habituellement une sous-estimation de l'effet des variables indépendantes. Comme dans ce cas, l'erreur résiduelle jouerait contre l'hypothèse sous examen, cette erreur reste acceptable d'un point de vue épidémiologique, puisque tendant à renforcer la démonstration de l'hypothèse, quand un effet significatif est observé.

Quant à la confondance liée à l'action simultanée des différents facteurs on a pu en limiter l'effet par la stratification et les analyses de régression logistique.

7. Conclusion

Plus de la moitié (47/89) des personnes participant à cette étude utilisaient une prothèse dentaire dont l'adaptation était défectueuse et requérait un regarnissage.

La proportion des prothèses nécessitant un regarnissage augmente avec la durée écoulée depuis l'installation de la prothèse en bouche. Les effectifs limités de l'étude ne permettent pas de conclure que la proportion des pièces défectueuses soit significativement différente pour les prothèses de la classe 1 et pour celles de la classe 2. On observe toutefois une différence qui suggère une proportion plus grande pour les prothèses de classe 1, différence qui tend à apparaître aussi plus tôt dans le temps. Et de ces observations, il est déjà possible de tirer des conclusions qui portent à conséquence pour la pratique clinique.

En premier lieu, il convient de reviser les politiques relatives aux examens de rappel telles qu'on les recommande aux patients traités à la clinique de prothèse de l'Ecole de Médecine Dentaire de l'Université Laval et par extension telles qu'on les enseigne aux étudiants en médecine dentaire. Comme cette étude montre que la proportion des prothèses nécessitant un regarnissage augmente avec la durée écoulée depuis la mise en bouche des prothèses il faut que les cliniciens modifient les habitudes des porteurs de prothèse qui consultent souvent uniquement après l'apparition de lésions buccales. On a également mis en évidence qu'il y a une relation entre le besoin en regarnissage et le type de prothèse, le système de reteneurs directs et l'occlusion à l'arcade opposée. Le clinicien devrait considérer ces éléments lors de la conception d'une pièce de prothèse amovible. Comme le dessin de la pièce relève de la responsabilité du clinicien et comme la structure de la pièce influence la longévité de l'appareil, les implications cliniques sont immédiates.

Pour les cliniciens, la conception du plan de traitement devrait comprendre la confection du calendrier de l'évaluation périodique et l'estimation du moment auquel surviendra le besoin de regarnissage. Comme il est pour l'instant impossible d'établir avec précision le moment approximatif où le regarnissage sera nécessaire, il convient de revoir périodiquement et régulièrement les patients dotés de prothèse. Pour l'instant, et compte tenu de l'état des connaissances on pourrait revoir les patients aux 6 mois de façon à évaluer leur santé buccale globale. La validité de différentes séquences de visites de contrôle pourrait faire l'objet d'une évaluation expérimentale éventuellement. Alors que l'utilité des examens de contrôle semble bien comprise par la population qui a ses dents naturelles, la fidélité aux examens de contrôle diminue chez les personnes dotées de prothèses dentaires. Il faut renverser cette tendance-là.

Il faut de plus faire le nécessaire pour que le caractère inévitable du regarnissage des prothèses soit mieux compris par le patient. Le besoin de réévaluer périodiquement la qualité des bases des prothèses dans le plan de traitement, si on prend le soin d'en expliquer la justification aux patients, est susceptible d'améliorer cette compréhension par la clientèle. Trop souvent, le besoin de regarnissage d'une prothèse est perçu à tort, comme l'indice d'une détérioration prématurée de la prothèse, voire même d'un vice de construction sinon de fabrication. C'est une erreur de perception qui peut affecter cruellement la santé dentaire des patients de prothèse et limiter sensiblement l'efficacité des services professionnels des dentistes.

Annexe A

Critères de définition du besoin de regarnissage

La nécessité de procéder au regarnissage d'une selle libre ou d'une extension distale est déterminée par l'évaluation de la stabilité et de l'occlusion à des intervalles «raisonnables» après le placement initial de la pièce de prothèse.

Il y a deux indications pour un besoin en regarnissage d'une selle libre:

Première indication:

La perte de contact occlusal entre les pièces opposées devient évidente. Ceci est déterminé en faisant fermer le patient sur deux cires de calibre 28. Si les contacts occlusaux entre les dents postérieures artificielles sont faibles ou absents alors que les dents antérieures restantes à la mandibule font contact

avec celles du maxillaire (naturelles ou artificielles), la pièce de prothèse avec selle(s) libre(s) doit avoir son occlusion réétablie, soit en altérant l'occlusion, soit en restaurant la position originale de la base, ou les deux.

Deuxième indication:

Une perte de support au niveau des tissus est évidente lorsqu'une pression alternative des doigts d'un côté ou l'autre de la ligne de fulcrum cause une rotation ou un mouvement des bases. La seule vérification de la perte de contact peut, à l'occasion, nous conduire à une fausse interprétation des besoins en regarnissage; la présence d'une rotation ou mouvement est une vérification beaucoup plus sûre. En fait l'évidence de rotation d'une selle libre autour de la ligne de fulcrum doit être le facteur décisif à savoir s'il y a nécessité ou non pour un regarnissage.

Remerciements: *Cette étude n'aurait pu être réalisée sans la contribution de madame Fatiha Ramdani qui a collaboré à la revue de la littérature et des dossiers. Elle a patiemment contacté les participants et réalisé la première partie des entrevues relatives aux aspects socio-démographiques des participants. Grâce à l'excellent support professionnel apporté par madame Diane Potvin, on a pu effectuer l'analyse des données avec le programme SAS.*

Dr. Lynda Nicholson *est une prosthodontiste et professeur en prothèse amovible avec la faculté de médecine dentaire à l'Université Laval.*

Dr Fernand Turcotte *est professeur titulaire au département de médecine sociale et préventive de médecine, à l'université Laval.*

Demandes de tirés à part: **Dr L. Nicholson**, *Faculté de Médecine Dentaire, Université Laval, Ste-Foy (Québec) G1K 7P4*

Bibliographie

1. Henderson, D., McGivney, G.P. and Castleberry, D.J. *McCracken's Removable Partial Prosthodontics*, 7th. ed. St. Louis, Mosby, p. 300, 1985.
2. Borel, J.-C., Schittly, J. and Extrayat, J. *Manuel de Prothèse Partielle Amovible*. Paris, New York, Masson, p.22, 1983.
3. Henderson, D., McGivney, G.P. and Castleberry, D.J. *McCracken's Removable Partial Prosthodontics*, 7th. ed. St. Louis, Mosby, p. 398, 1985.
4. Applegate, O.C. *Essentials of Removable Partial Denture Prosthesis*, 3rd ed. Philadelphia, W.B. Saunders Co., p.p. 253-289, 1966.
5. Applegate, Q.C. An Evaluation of the Support for the Removable Partial Denture. *J Pros Dent* 20:112-123, 1960.
6. McLean, D.W. The Partial Denture as a Vehicule for Function. *JADA* 23:171-178, 1936.
7. Hindels, G.W. Load Distribution in Extension Saddle Partial Denture. *J Pros Dent* 22:92-100, 1952.
8. Leupold, Robert, J. A Comparative Study of Impression Procedure for Distal Extension Removable Partial Dentures. *J Pros Dent* 16:708, 1966.
9. Steffel, V.L. Relining Removable Partial Dentures for Fit and Function. *J Pros Dent* 4:496-509, 1954; *J Tenn Dent Assoc* 36:35-43, 1956.
10. Steffel, V.L. Simplified Clasp Partial Dentures Designed for Maximum Function. *JADA* 32:1093-1100, 1945.
11. Steffel, V.L. Fundamental Principles Involved in Partial Denture Design. *JADA* 42:534-544, 1951.
12. Steffel, V.L. Fundamental Principles Involved in Partial Denture Designs, with Special Reference to Equalization of Tooth and Support. *Aust Dent J* 54:328-333, 1950; *Aust Dent J* 23:68-77, 1951.
13. Kratochvil, F.J. Influence of Occlusal Rest Position and Clasp Design on Movement of Abutment Teeth. *J Pros Dent* 13:114-124, 1963.
14. Kratochvil, F.J., Thompson, W.D. and Capato, A.A. Photoelastic Analysis of Stress Patterns on Teeth and Bone with Attachment Retainers for Removable Partial Dentures. *J Pros Dent* 46:21-28, 1981.
15. Krol, A.J. Clasp Design for Extension Base Removable Partial Dentures. *J Pros Dent* 29:408-415, 1973.
16. Krol, A.J. RPI Clasp Retainer and its Modifications. *Dent Clin North Am* 17:631-649, 1973.
17. Kaires, A.K. Effect of Partial Denture Design on Bilateral Force Distribution. *J Pros Dent* 6:373-389, 1956.
18. Cummer, W.E. Impressions in Partial Denture Service. *Dent Cosmos* 68(1):58-66, 1926.
19. Ibid. Impressions in Partial Denture Service. *Dent Cosmos* 70(1):72-82, 1928.
20. Ibid. Impression in Partial Denture Service. *Dent Cosmos* 70(3):278-292, 1928.
21. Addison, P.I. Mucostatic Impressions. *JADA* 31(13):941-946, 1944.
22. Hansen, C.A. and Sinser, M.T. The Segmented Framework Removable Partial Denture. *J Pros Dent* 57(6):765-768, 1987.
23. Borel, J.C., Schittly, J. and Extrayat, J. *Manuel de Prothèse Partielle Amovible.*, Paris, Masson, p.p. 67-72, 1983.
24. Borel, J.C., Schittly, J. and Extrayat, J. *Manuel de Prothèse Partielle Amovible*. Paris, Masson, p.p. 67-72, 1983.
25. Krol, A.J. *Removable Partial Denture Design, An outline Syllabus*, 3rd. ed. San Francisco, p.p. 19-26, 1981.
26. Boree, J.C., Schittly, J. and Extrayat, J. *Manuel de Prothèse Partielle Amovible*. Paris, Masson, p.p. 67-72, 1983.
27. Eliason, Charles M. *A Clasp Design for Distal-Extension Removable Partial Denture.*, University of the Pacific, School of Dentistry, San Francisco, California, p.p. 25-27, 1983.
28. Henderson, D., McGivney, G.P. and Castleberry, D.J. *McCracken's Removable Partial Prosthodontics*, 7th. ed. St. Louis, Mosby, p.p. 421-425, 1985.
29. Krol, A.J. *Removable Partial Denture Design, an Outline Syllabus*, 3rd. ed. San Francisco, p.p. 99-103, 1981.
30. Leake, J.L. *An Index of Chewing Ability*. Department of Community Dentistry, Faculty of Dentistry, University of Toronto, 1988.
31. SAS Institute Inc. (1985). *SAS User's guide: Basics*. Version 5 édition. Cary, N.C.: SAS Institute Inc.
32. SAS Institute Inc. (1985). *SAS User's guide: Statistics*. Version 5 édition. Cary, N.C. : SAS Institute Inc.
33. Leake, J.L. *An Index of Chewing Ability*. Department of Community Dentistry, Faculty of Dentistry, University of Toronto, 1988.
34. Henderson, D., McGivney, G.P. and Castleberry, D.J. *McCracken's Removable Partial Prosthodontics*, 7th ed. Mosby, St-Louis, p. 423-425, 1985.
35. Hébert, G. *Initiation à la Prothèse Partielle Amovible en Médecine Dentaire*. Presses de l'Université Laval, Québec, p. 4-5, 1984.
36. Eliason, C.M. RPA Clasp Design for Distal Extension Removable Partial Denture. *J Pros Dent* 49:25-27, 1983.
37. Houston, J.B. Removable Partial Denture Therapy. *Oral Health* 79(4):31-34, 1989.
38. Kratochvil, F.J. *Partial Removable Prosthodontics*. Philadelphia, W.B. Saunders Co., p. 42, 1988.
39. DeVan, M.M. The Nature of the Partial Denture Foundation: Suggestion for its preservation. *J Pros Dent* 2(1):210-218, 1952.
40. Hindels, G.W. Load Distribuation in Extension Saddle Partial Dentures. *J Pros Dent* 2(1):92-100, 1952.
41. Lytle, R.B. Soft Tissue Displacement Beneath Removable Partial and Complete Dentures. *J Pros Dent* 12(1):34-43, 1962.
42. Kratochvil, F.J. Influence of Occlusal Rest Position and Clasp Design on Movement of Abutment Teeth. *J Pros Dent* 13(1):114-124, 1963.
43. Homes, J.B. Influence of Impression Procedures and Occlusal Loading on Partial Denture Movement. *J Pros Dent* 15(3):474-481, 1965.
44. Leupold, R.J. and Kratochvil, F.J. An Altered Cast Procedure to Improve Support for Removable Partial Dentures. *J Pros Dent* 15(4):672-678, 1965.
45. Leupold, R.J. A Comparative Study of Impression Procedures for Distal Extension Removable Partial Dentures. *J Pros Dent* 16(4):708-720, 1966.
46. Prieskel, H.W. The Distal Extension Prosthesis Reappraised. *J Pros Dent* 5(3):227-230, 1977.
47. Holmes, J.B. The Altered Cast Impressions Procedure for the Distal Extension Removable Partial Denture. *Dent Clin North Am* 14(3):569-582, 1970.
48. Rapuano, J.L.A. Single-Tray Dual-Impression Technique for Distal Extension Partial Dentures. *J Pros Dent* 24(1):41-46, 1970.
49. Prieskel, H.W. Impression Techniques for Attachment-Retained Distal Extension Removable Partial Dentures. *J Pros Dent* 25(6):620-628, 1971.
50. Vahidi, F.K. Vertical Displacement of Distal-Extension Ridges by Different Impression Techniques. *J Pros Dent* 40(4):374-377, 1978.
51. Blatterfein, L.I.E. and Mislino, J.K.C. A Loading Impression Technique for Semi-Precision and Precision Removable Partial Dentures. *J Pros Dent* 43(1):9-14, 1980.
52. Pezzoli, J. Single and Compressive Im-

pression Technique for Removable Distal-Extension Partial Dentures. *SSO Schweiz Monatsschr Zahnheilkd* 91(5):323-328, 1981.
53. Preiskel, H.W. Attachments in Removable Partial Dentures with Distal Extension. *Alpha Omega* (7):11-13, 1982.
54. Leupolds, R.J. Using the Altered Cast Procedure to Obtain the Best Support for Extension Partial Dentures. *TIC* 41(8):10-12, 1982.
55. Gelbman, J.C. Accurante Distal Extension Removable Prosthesis. *Quintessence Int* 15(9):977-981, 1984.
56. Milslino, J.C. Impression Procedures for Semi-Precision Removable Partial Dentures. *Dent Clin North Am* 29(1):133-148, 1985.
57. Becker, C.M. and Kaldahn, W.B. The Altered Cast Procedure. *J Colo Dent Assoc* 63(4):5-7, 1985.
58. Kuwashima, S., Matsumoto, T., Hirata, M. et al. Difference Between Altered-Cast Impressions and Dentists Impressions in Distal Extension Removable Partial Dentures. *Nichrdsi Koko Kasaku* 11(3):258-264, 1985.
59. Grove, H.F. and Broering, L.F. A Three-Appointment Technique for a Distal Extension Removable Partial Denture. *Quintessence Int.* 17(1):29-33, 1986.
60. Johnson, A. An Impression Technique for Bilateral Mandibular Distal Extension Partial Dentures. *Quintessence Dent Technol* 10(10):631-634, 1986.
61. Chen, M.S., Eichhold, W.A., Chien, C.C. et al. An Altered-Cast Impression Boxing. *J Pros Dent* 57(4):471-474, 1987.

FIRST AID TIP

NOSE BLEEDS

• Sit down with the head slightly forward • Loosen clothing around the neck and breathe through the mouth • Pinch the nose just below the cartilage for about 10 minutes • Do not sniff or blow nose for some hours • Cold compresses may be applied to the forehead and the nape of the neck • Use a wet hankie or cloth to clean the area around the nose • If bleeding persists or recurs, it may be a sign of some medical problem • Seek medical attention.

St. John Ambulance

MAY WE HAVE YOUR ATTENTION, PLEASE?

CDA ACCESS now offers ATTENTION GRABBERS! For a low additional cost, you can spruce up your classified notices with special eye-catching typography and art. Call Ola Murphy at (800) 661-5004 or (416) 278-6700 for information about this exclusive CDA ACCESS feature.

Here are some examples of CDA ACCESS ATTENTION GRABBERS! This feature is available only to Dental Professionals, at the following prices:

ALTERNATE BORDER	$12.50	SYMBOL	$25.95
SHADED	$15.95	SHADOW	$29.50
REVERSE	$19.95		

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Dublin, Ireland
July 17-25, 1992
400th Anniversary of Trinity College. Professional Scientific sessions, post convention tours, direct Toronto-Dublin flights. Superb hospitality. Reply to CDA ACCESS Box 2537. (05/05)

Annual Index

THE JOURNAL OF THE CANADIAN DENTAL ASSOCIATION ANNUAL INDEX
Volume 58, Numbers 1-12

The format includes three separate indexes, an author, subject and book review index.
The subject headings have been assigned in accordance with those established by the National Library of Medicine.
Each entry is followed by the abbreviated month and the page number in the Journal.

1992

AUTHOR'S INDEX

A

Ahing, S., Aug, 647-52.
Amato, D., Jun, 496-9.

B

Balanko, M., Oct, 817-9.
Baltadjian, H., Mar, 228-9, May, 416-8.
Barewal, R., Sep, 752-5.
Barnes, D., Aug, 635-6.
Barolet, R.Y., Sep, 731-5.
Beercroft, W.A., Jan, 59-62.
Bourassa, M., Nov, 905-11.
Bourdages, J., Sep, 738-40.
Brodeur, J-M., Sep, 738-40, Nov, 921-33.

C

Carlson-Mann, L.D., Jul, 561-2.
Carr, M.M., Oct, 838-44.
Chapnick, P., Jan, 43-52.
Chin, I., Jan, 53-8.
Chipeur, G.D., Oct, 806-9.
Chiu, E.K.Y., Dec, 989-990
Clark, D.B., Nov, 912-20.
Cogan, A.G., Jan, 59-62.
Collinson, D.M., May, 397-400.
Compton, K.H., Jul, 563-7.
Conry, J.P., Mar, 223-6.
Crawford, P.R., Apr, 297-301, May, 388-90, Jul, 555-9, 568, Sep, 711-6, Nov, 898-9.
Creighton, J.M., Mar, 201-7.
Curran, J.B., Mar, 215-6.

D

Daley, T.D., Aug, 647-52.
DeBrouwere, R., Mar, 215-6.
Desautels, P., May, 416-8.
Diamond, L.H., Jan, 43-52.
Duncan, W.J., Mar, 208-12.
Dunn, W.J., Oct, 825-37.

E

ElBadrawy, H.E., Apr, 302-4.
Epstein, J.B., Feb, 140-3, Mar, 217-21, Jun, 488-95.

F

Fogel, C., Sep, 743-6.
Foster, R.T., May, 397-400.

G

Galan, D., Sep, 743-6.
Glover, K., Jul, 574-9.
Goldman, B., Jul, 571-3.

H

Haas, D.A., Jan, 28-33.
Hale, T.M., May, 412-5.
Hardie, J., Feb, 131-8, Mar, 193-6, Apr, 281-2, May, 377-86, Jul, 569-70, Sep, 721-8.
Harrison, E.L., Oct, 810-5.
Harper, D.G., Jan, 28-33.
Headley, N.C., May, 412-5.
Hoen, M.M., May, 412-5.
Hsu, E.Y., Feb, 119-23.

I

Ibbott, C.G., Jul, 561-2.

J

Jordan, R.E., Jun, 484-7, Aug, 623-5, Oct, 817-9.
Jordon, R.C.K., Sep, 752-5.

K

Kiyak, A., Jun, 459-62.
Kogon, S.L., Oct, 825-37.
Komiyama, K., Sep, 747-51.
Kovach, R.J., Jul, 561-2.
Krochak, B., Sep, 743-6.
Krywulak, M.L., Feb, 125-30.

L

Lachapelle, D., Sep, 738-40.
Landry, R.G., May, 407-11.
Laurin, D., Sep, 738-40.
Leduc, N., Sep, 738-40.
Lee-Knight, C., Oct, 810-5.
Lovas, J., Aug, 647-52.
Luke, K.H., Feb, 115-8.
Lynch, D., May, 393-5.

M

MacKenzie, T.A., Jan, 34-42.
Mahseredjian, S., Mar, 228-9.
Maier, H.J., Feb, 99, Apr, 263, 615, Dec, 985-8.
Main, J.H., Aug, 647-52, Sep, 752-5.
Major, P.W., Jul, 574-9. Aug,
Manji, I., Jan, 21-2, Feb, 97-8, Mar, 172-3, Apr, 267-70, May, 359-60, Jun, 453-4, Aug, 619-20, Sep, 703-4, Oct, 793-4, Nov, 895-6, Dec, 977-8.
Maretic, H., Dec, 989-90
Markowsky, R., Jan, 53-8.
Mason, R.B., Oct, 838-44.
Massicotte, P., Aug, 731-5.
Mazurat, R.D., Jun, 500-2, Jul, 571-3.
McConnachie, I., Mar, 197-200.
McErlane, B., Jun, 481-3.
McNulty, B., Sep, 729-30.
Mercier, P., Sep, 756-66, Oct, 845-52.
Miller, M., May, 407-11.
Moss, S.A., Feb, 153-4.

N

Nguyen, N.H., May 407-11.
Nickolson, L., Nov, 934-41, Dec, 1015-24.

P

Packota, G.V., Sep, 747-51.
Parasiuk, B.K., May, 397-400.
Payette, F., Sep, 756-66, Oct, 845-52.
Payette, M., Nov, 921-33.
Peters, E., Feb, 146-51.
Piekarski, J.M., Apr, 307-10.
Pollack, R., Aug, 631-3.
Precious, D., Jun, 463-6, Sep, 756-66, Oct, 845-52.
Preston, J.D., Apr, 289-94.
Prévost, A.P., May, 416-8.
Price, C.J., Oct, 810-5.
Priddy, R.W., Apr, 311-21.
Pride, J.R., Aug, 643-4.
Putman, J., Apr, 307-10.
Pynn, B.R., Jun, 496-9.

R

Rayner, D., Jan, 53-8.
Reginnitter, F.J., May, 412-5.
Rekow, E.D., Apr, 283-8.
Roda, R.S., May, 401-5.
Rosebush, W.J., Jun, 481-3.
Rossmann, J.A., Apr, 307-10.
Roth, A.G., Mar, 223-6.
Runyan, D.A., May, 412-5.

S

Scully, C., Feb, 140-3, Mar, 217-21.
Speechley, M.R., Oct, 825-37.
Stangel, I., Dec, 1005-14.
Stephens, R.G., Oct, 825-37.
Stevenson-Moore, P., Feb, 140-3.
Stockton, H.J., Aug, 637-41.
Stoykewych, A.A., Jan, 59-62, Mar, 215-6.
Suzuki, M., Jun, 484-7, Aug, 623-5, Oct, 817-9.

T

Teplitsky, P.E., Jan, 53-8.
Thomas, J., Aug, 627-9.
Turcotte, F., Dec, 1015-24.

U

Ublansky, J., Feb, 111-4.

V

Vallée, R., Sep, 738-40.
Vincent, J.R., Sep, 731-5.

W

Walker, D.A., Jun, 496-9.
Walton, J.M., Oct, 820-3.
Waterford, J.D., Jun, 481-3.
Weiner, A.A., Jul, 580-5.
Wolfaardt, J.F., Feb, 146-51.
Wong, B., Sep, 743-6.
Wright, J.M., Dec, 989-90.
Wysocki, G.P., Aug, 647-52.

Y

Young, E.R., Jan, 28-33, 34-42.

Z

Zakler, R., Nov, 905-11.

SUBJECT INDEX

A

ACADEMY OF GENERAL DENTISRY
Oct, 857.

ACCIDENTS, TRAFFIC
Temporomandibular disorders, facial pain and headache following motor vehicle accidents, Jun, 489-93.

ACID ETCHING, DENTAL
A preliminary comparative study of the retentive properties of four post and core systems in etched preparations, Aug, 665-70.

ADHESIVES
Résistance adhésive entre une base au verre ionomère photopolymérisable et une résine composite, May, 416-8.

ADOLESCENCE
Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children, Nov, 921-33.

AGED
Nutritional deficiencies and gastrointestinal disorders in the edentulous elderly, Sep, 738-40.
The Teaching of Geriatric Dentistry in Canada, Sep, 731-5.

AIDS
Jan, 14.
Another Perspective of AIDS, May, 393-5.
The Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Dentists Overcome AIDS Rumors, May, 388-90.
Grants, Mar, 176.

AIDS - LEGISLATION & JURISPRUDENCE
Dec, 965.

AIDS - TRANSMISSION
Addressing the Fears of HIV Transmission in Dental Practice, Mar, 193-5.
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.
Infectious or not? The Handpiece Controversy, Apr, 281-2.

ALBERTA
The base metal alloy question in removable partial dentures, Feb, 146-51.

ALBERTA DENTAL ASSOCIATION
Executive, Sep, 696.

ALPHA OMEGA MOUNT ROYAL DENTAL SOCIETY
Executive, Sep, 696.

AMERICAN DENTAL ASSOCIATION
President, Jan, 11.

AMERICAN HEART ASSOCIATION
Dental Care for the Pediatric Cardiac Patient, Mar, 201-7.

AMIDES
The pharmacology of local anesthetics, Jan, 34-42.

ANESTHESIA, DENTAL
Benzodiazepine reversal with flumazenil, Apr, 307-10.
Dental Anesthesia and Shoplifting, May, 397-400.

ANESTHESIA, GENERAL
Malignant hyperthermia and the general dentist, Jan, 28-33.

ANESTHESIA, LOCAL
Malignant hyperthermia and the general dentist, Jan, 28-33.
The pharmacology of local anesthetics, Jan, 34-42.

ANTIBIOTICS - ADVERSE EFFECTS
Allergic reactions to spiramycin, Dec, 989-90.

ANTIBIOTICS - THERAPEUTIC USE
Congenital Cardiac Disease and Contemporary Dental Care of the Pediatric Patient, Mar, 208-12.
Dental Care for the Pediatric Cardiac Patient, Mar, 201-7.

ANTICOAGULANTS
Dental management of anticoagulated patients, Oct, 838-44.

ANTI-INFLAMMATORY AGENTS, NON STEROIDAL
Naproxen: Pharmacology and dental therapeutics, May, 401-5.

ANXIETY DISORDERS
Dental anxiety: differentiation, identification and behavioral management, Jul, 58-5.
Stress factors and coping strategies in the dental profession, Nov, 905-11.

APPOINTMENTS
Boyd, M., Oct, 783.
Graham, B., Mar, 176.
Vallée, R., May, 343.

APPOINTMENTS AND SCHEDULES
Making the Most of the Mail, Feb, 101.

APTITUDE
Aptitude + Attitude = Success, Aug, 635-6.

ASSOCIATION OF PROSTHODONTISTS OF CANADA
Executive, Feb, 85.

ATTITUDE OF HEALTH PERSONNEL
Addressing the Fears of HIV Transmission in Dental Practice, Mar, 193-5.
Aptitude + Attitude = Success, Aug, 635-6.
The Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.

AWARDS AND PRIZES
Angelopoulos, G., Mar, 175.
Barolet, R., Oct, 787.
Bedford, B., Oct, 787.
Brandon, R., Oct, 788.
Cripton, M., Oct, 787.
Dow, P., Oct, 787.
Eisner, D.A., Dec, 970.
Gravel, M., Nov, 878.
Greppi, L., Mar, 175.
Jones, D., Jun, 442.
Lamarche, P-Y., Oct, 787.
McIntosh, W., Oct, 787.
McIntyre, R., Oct, 787.
Nikiforuk, G., Oct, 787.
Smith, R., Oct, 787.
Veisman, H., Nov, 878,
Woodside, D., Oct, 787.
Youdelis, W., Jun, 442.

B

BACTEROIDES INFECTIONS
Fatal necrotizing fasciitis of dental origin, Jan, 56-62.

BARBADOS DENTAL ASSOCIATION
Apr, 251.

BEHAVIOR THERAPY
Dental anxiety: differentiation, identification, and behavorial management, Jul, 580-5.

BENZODIAZEPINES
Benzodiazepine reversal with flumazenil, Apr, 307-10.

BICUSPID
Esthetic alternatives for posterior teeth, Oct, 820-3.

BIOCOMPATIBLE MATERIALS
The base metal alloy question in removable partial dentures, Feb, 146-51.
Titanium - The Metal of the Gods, Jul, 568.

BLOOD COAGULATING DISORDERS
Comprehensive Dental Care for Children with Bleeding Disorders - A Dentist's Perspective, Feb, 111-4.
Comprehensive Dental Care for Children with Bleeding Disorders - A Physician's Perspective, Feb, 115-8.
Dental Care of the Pediatric Cardiac Patient, Mar, 201-7.

BRAIN NEOPLASMS
Cancer in Children, Feb, 119-123.

BRANDON, ROBERT
Dentists at Risk [interview], Nov, 900-4.

BURNOUT, PROFESSIONAL
Dentists at Risk [interview], Nov, 900-4.

C

CAD/CAM
CAD/CAM in Dentistry, Apr, 283-7.

CANADA
The Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Canadian Dentists' Insurance Program, Sep, 729-30.
Constitution, Oct, 788.
Dental Injuries at the 1989 Canada Games, Oct, 810-5.
Factors Affecting the Future Need For Dental Manpower in Canada and Quebec, Dec, 1005-14.
Oral Pathology in Canada: A survey, Aug, 647-52.
The Teaching of Geriatric Dentistry in Canada, Sep, 731-5.

CANADIAN ACADEMY OF ORAL MEDICINE
Executive, Jan, 11.

CANADIAN ACADEMY OF PEDIATRIC DENTISTRY
Executive, Nov, 877.

CANADIAN ACADEMY OF PERIDONTOLOGY
Executive, Feb, 85, Sep, 696.

CANADIAN ACADEMY OF PROSTHODONTICS
Executive, Jan, 11.

CANADIAN ACADEMY OF PUBLIC HEALTH DENTISTS
Executive, Jan, 11.

CANADIAN ACADEMY OF RESTORATIVE DENTISTRY
President, Apr, 251.

CANADIAN ASSOCIATION OF ORTHODONTISTS
Executive, Nov, 877.

CANADIAN CONFERENCE ON THE EVALUATION OF CURRENT RECOMMENDATIONS CONCERNING FLUORIDE
Jun, 444-5.

CANADIAN DENTAL ASSOCIATION
CDA/Bausch & Lomb Dental Pentathlon, Apr, 252, Oct, 783.
CDA/Dentsply Student Clinician Program, Dec, 968-70.
CDA Board of Govenors Annual Meeting - Highlights, Oct, 784-7.
Committee on Students Affairs, Jun, 441.
Guidelines for Referring Patients, Nov, 878-80.
Meet the Dolanskys [interview], Sep, 711-16.
No-Smoking Policy, Jan, 15.
President, Sep, 695.
President-Elect, Sep, 695.
Statement on Lasers, Apr, 301.
Vice-President, Sep, 695.

CANADIAN DENTAL ASSOCIATION CONVENTION
Calgary 1992: Convention Round-Up, Nov, 871-4.
Calgary 1992: Convention Update, Jan, 23-5, Feb, 103-5, Mar, 181-7, Apr, 271-8, May, 261-73,

Jun, 466-80, Jul, 539-50, Aug, 621.
Toronto 1993: Convention Update, Sep, 707-9, Oct, 798-802, Nov, 887-94, Dec, 991-1002.

CANADIAN FORCES DENTAL SCHOOL
Jan, 11.

CANADIAN FUND FOR DENTAL EDUCATION
30th Anniversary, Oct, 792.
Appointments, Feb, 91.
CFDE Month, Oct, 792.
Donations, Mar, 177.
Fellowships, Sep, 698-9.
Grants, May, 345, Jun, 445-6, Aug, 607.

CANADIAN PUBLIC HEALTH ASSOCIATION
Jul, 528.

CANDIDIASIS, ORAL
Management of xerostomia, Feb, 140-3.

CARL O. BOUCHER PROSTHODONTIC CONFERENCE
Jul, 528.

CARTICAINE
Dental Anesthesia and Shoplifting, May, 397-400.

CASE REPORT
Allergic reactions to spiramycin, Dec, 989-90.
Dental Anesthesia and Shoplifting, May, 397-400.
Fatal necrotizing fasciitis of dental origin, Jan, 59-61.
Hemimaxilllary odontogenic dysplasia, Feb, 153-4.
Prosthodontic rehabilitation of a patient with mucormycosis, Jul, 571-3.
Smoking and its effects on the hard palate, Mar, 215-6.
Subcutaneous emphysema following dental treatment, Jun, 496-9.
Vertical Extrusion, May, 412-5.

CDSPI REPORTS [series]
CDIP: Better Than Ever (Let's Talk), Sep, 719.
CDSPI Announces DOMS II, Mar, 178.
Dentists speak out for the Canadian Dentists' Insurance Program, Jul, 551-4.
Dentists United, May, 349-50.
A Farewell Interview With CDSPI'S President (Let's Talk), Dec, 982-3.
Dr. Gilles Dubé, Jan, 18.
Goodwill - Your Most Valuable Asset, Aug, 613-4.
Meeting the Challenge of HIV and Hepatitis, Oct, 803.
Premium increases, insurance agents and brokers (Let's Talk), Feb, 102.
A Survival Guide for Dentists (Let's Talk), Apr, 279.
Using Time to Maximize Your RSP Investment, Nov, 945-6

CHARENDOFF, MEL
CDSPI President Retires [interview], Dec, 982-3.

CHILD
Cancer in Children, Feb, 119-123.
Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children, Nov, 921-33.
Comprehensive Dental Care for Children with Bleeding Disorders - A Dentist's Perspective, Feb, 111-4.
Comprehensive Care for Children with Bleeding Disorders - A Physician's Perspective, Feb, 115-8.
Congenital Cardiac Disease and Contemporary Dental Care of the Pediatric Patient, Mar, 208-12.
Dental Considerations for the Pediatric Oncology Patient, Feb, 125-30.
Hemimaxillary odontogenic dysplasia, Feb, 153-4.

CLEFT LIP - SURGERY
Function: The Basis of Facial Esthetics, Jun, 463-6.

CLEFT PALATE - SURGERY
Function: The Basis of Facial Esthetics, Jun, 463-6.

CLINDAMYCIN
A review of dry socket, Jan, 43-52.

CLUSTER HEADACHE
Facial neuralgias: A clinical review of 34 cases, Sep, 752-52.

COHORT STUDIES
A retrospective cohort evaluation of preventive resin restorations, Mar, 223-6.

COLLEGE OF DENTAL SURGEONS OF BRITISH COLUMBIA
Mar, 175, Jul, 527-8.
Executive, Oct, 783.

COMMUNICATION
Little Things Mean a Lot, Aug, 610.
Patient Communication: It's a Team Effort, Apr, 259.
Patient Communication: Opportunities Knock, May, 356.

COMPARATIVE STUDY
The Ideal Composite Material, Jun, 484-7.
A preliminary comparative study of the retentive properties of four post and core systems in etched preparations, Aug, 665-70.

COMPOSITE RESINS
Esthetic alternatives for posterior teeth, Oct, 820-3.
The Ideal Bonding Material, Aug, 623-5.
The Ideal Composite Material, Jun, 484-7.
A preliminary comparative study of the retentive properties of four post and core systems in etched preparations, Aug, 665-70.
The Preventive Resin Restoration: A Conservative Alternative, Mar, 197-200.
Résistance adhésive entre une base au verre ionomère photopolymérisable (Vitre-Bond) et une résine composite (p.50), May, 416-8.
A retrospective cohort evaluation of preventive resin restorations, Mar, 223-6.

COMPREHENSIVE DENTAL CARE
Comprehensive Dental Care For Children with Bleeding Disorders - A Dentist's Perspective, Feb, 111-4.
Comprehensive Care for Children with Bleeding Disorders - A Physician's Perspective, Feb, 115-8.

COMPUTER SYSTEMS
CDSPI Announces DOMS II, Mar, 178.
Make Mine Modular, Jul, 535-6.
Plugging into Technology, Apr, 267-70.

COMPUTERS - TRENDS
Computers in Clinical Dentistry, Nov, 898-9.
The Future of Computers in Clinical Dentistry, Apr, 289-94.

CONGRESSES
Les journées dentaires, Apr, 249.

CONSCIOUS SEDATION
Malignant hyperthermia and the general dentist, Jan, 28-33.

CROSS INFECTION
Infectious or not? The Handpiece controversy, Apr, 281-2.

CURRICULUM
The Teaching of Geriatric Dentistry in Canada, Sep, 731-5.

D

DENTAL ALLOYS
The base metal alloy question in removable partial dentures, Feb, 146-151.

DENTAL AMALGAM
Bonded Silver Amalgam Restorations, Oct, 817-9.

DENTAL ANXIETY
Dental Anesthesia and Shoplifting, May, 397-400.
Dental anxiety: differentiation, identification and behavioral management, Jul, 580-5.

DENTAL ASSOCIATION OF PRINCE EDWARD ISLAND
Executive, Oct, 784.

DENTAL AUXILIARIES
The Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.

DENTAL AWARENESS PROGRAM ADVISOR [series]
April is Dental Health Month, Mar, 179.
Little Things Mean a Lot, Aug, 610.
Making the Most of the Mail, Feb, 101.
Patient Communication: It's a Team Effort, Apr, 259.
Patient Communication: Opportunities Knock, May, 356.
Patient Profiles, Jun, 457.
Phone Finesse, Jan, 27.
We got the T.E.A.M., Oct, 804.

DENTAL BONDING
Bonded Silver Amalgam Restorations, Oct, 817-9.
The Ideal Bonding System, Aug, 623-5.
Résistance adhésive entre une base au verre ionomère photopolymérisable (Vitre-Bond) et une résine composite (p.50), May, 416-8.

DENTAL CARE FOR HANDICAPPED
Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Comprehensive Dental Care for Children with Bleeding Disorders - A Dentist's Perspective, Feb, 111-4.
Comprehensive Dental Care for Children with Bleeding Disorders - A Physician's Perspective, Feb, 115-8.
Congenital Cardiac Disease and Contemporary Dental Care of the Pediatric Patient, Mar, 208-9.
Dental Care for the Pediatric Cardiac Patient, Mar, 201-7.
Dental care for the psychiatric patient: chronic schizophrenia, Nov, 912-9.
Dental Considerations for the Pediatric Oncology Patient, Feb, 125-30.
Dental Management of anticoagulated patients, Oct, 838-44.

DENTAL CARIES
Comparison of dental caries and oral hygiene for 13-14 year old Quebec children, Nov, 921-33.
Lasers - The New Wave in Dentistry, Apr, 297-301.
The Preventive Resin Restoration: A Conservative Alternative, Mar, 197-200.
A retrospective cohort evaluation of preventive resin restorations, Mar, 223-6.

DENTAL CARIES - PREVENTION & CONTROL
Nov, 883.
Management of xerostomia, Feb, 140-3.

DENTAL DEVICES, HOME CARE
Vital tooth bleaching, Aug, 654-63

DENTAL EQUIPMENT
Assessment of the Effectiveness of Dental Sterilizers, Jun, 481-3.

DENTAL HEALTH SURVEYS
Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children, Nov, 921-33.

DENTAL HIGH-SPEED EQUIPMENT
Gutta percha removal utilizing GPX instrumentation, Jan, 53-8.

DENTAL IMPLANTATION
Implant Dentistry [interview], Ju. 555-9.

DENTAL IMPLANTS
The KAL-Technique, Jun, 448-9.

DENTAL IMPRESSION TECHNIQUE
Accurate Crowns Under the Clasps of Partials, Apr, 263-4.

DENTAL INSTRUMENTS
Concerns Regarding Infection

Control Recommendations For Dental Practice, May, 377-86.
Infectious or not? The Handpiece Controversy, Apr, 281-2.

THE DENTAL LAB AND YOU [series]
Accurate Crowns Under the Clasps of Partials, Apr, 263-4.
Exacting Retention Made Easy, Aug, 615.
The KAL-Technique, Jun, 448-9.
Procera: A New Concept in Crown & Bridge, Dec, 995-8.
Twin Block Appliances, Oct, 858.
The Unique Thermo-Elastic Acrylic Splint, Feb, 99.

DENTAL MATERIALS
The Ideal Composite Material, Jun, 484-7.
Résistance adhésive entre une base au verre ionomère photopolymérisable (Vitre-Bond) et une résine composite (p.50), May, 416-8.

DENTAL PORCELAIN
Esthetic alternatives for posterior teeth, Oct, 820-3.

DENTAL RECORDS
Who's Got the Patient?, Oct, 806-9.

DENTAL RESTORATIONS, PERMANENT
Bonded Silver Amalgam Restorations, Oct, 817-9.
CAD/CAM in Dentistry, Apr, 283-8.
Esthetic alternatives for posterior teeth, Oct, 820-3.
The Ideal Bonding Material, Aug, 623-5.
The Ideal Composite Material, Jun, 484-7.
Lasers - The New Wave in Dentistry, Apr, 297-301.
The Preventive Resin Restoration: A Conservative Alternative, Mar, 197-200.
A retrospective cohort evaluation of preventive resin restorations, Mar, 223-6.
Subcutaneous emphysema following dental treatment, Jun, 496-9.

DENTAL STAFF
A 1992 Update on Hepatitis B Vaccination, Jul, 569-70.
Addressing the Fears of HIV Transmission in Dental Practice, Mar, 193-5.
Fair Pay and Then Some, Nov, 895-6.
Handle With Care: Staff Dismissals, Dec, 977-8.
Hiring the Best and the Brightest, Oct, 793-4.
We got the T.E.A.M., Oct, 804.
Working Smarter Not Harder, Aug, 631-3.

DENTISTS
The Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Dentists Overcome AIDS Rumors, May, 388-90.

DENTISTRY - MANPOWER
Factors Affecting the Future Need of Dental Manpower in Canada and Quebec, Dec, 1005-14.

DENTISTRY - TRENDS
The Future of Computers in Clinical Dentistry, Jul, 289-94.
Lasers - The New Wave in Dentistry, Apr, 297-301.

DENTITION, MIXED
Treatment of anterior cross-bites in the early mixed dentition, Jul, 574-9.

DENTURE, COMPLETE
Longevity of partial, complete and fixed prostheses, Jun, 50-4.

DENTURE DESIGN
CAD/CAM in Dentistry, Apr, 283-8.
Caractéristiques cliniques affectant le besoin de regarnissage des pièces de prothèses amovibles, Dec, 1015-24.
Considérations spéciales relatives aux pièces de prothèses amovibles, Nov, 934-42.
Longevity of partial, complete and fixed prostheses, Jun, 500-4.

DENTURE IDENTIFICATION MARKING
Denture identification: The University of Manitoba's denture identification service, Sep, 743-6.

DENTURE LINERS
Caractéristiques cliniques affectant le besoin de regarnissage des pièces de prothèses amovibles, Dec, 1015-24.

DENTURE, PARTIAL
Longevity of partial, complete and fixed prostheses, Jun, 500-4.

DENTURE, PARTIAL, FIXED
Longevity of partial, complete and fixed prostheses, Jun, 500-4.

DENTURE, PARTIAL, REMOVABLE
The base metal alloy question in removable partial dentures, Feb, 146-51.
Caractéristiques cliniques affectant le besoin de regarnissage des pièces de prothèses amovibles, Dec, 1015-24.
Considérations spéciales relatives aux pièces de prothèses amovibles, Nov, 934-42.
Longevity of partial, complete and fixed prostheses, Jun, 500-4.

DENTURE, PRECISON ATTACHMENT
Exacting Retention Made Easy, Aug, 615.

DENTURE PROSTHESIS
Denture identification: The University of Manitoba's denture identification service, Sep, 743-6.

DENTURE RETENTION
A preliminary study of the retentive properties of four post and core systems in etched preparations, Aug, 665-70.

DENTURES
Nutritional deficiencies and gastrointestinal disorders in the edentulous elderly, Sep, 738-40.

DIETARY FIBER
Nutritional deficiencies and gastrointestinal disorders in the edentulous elderly, Sep, 738-40.

DISINFECTION
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.
Surface disinfection of saliva-contaminated dental X-ray film, Sep, 747-51.

DMF INDEX
Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children, Nov, 921-33.

DOLANSKY, BERNARD
Meet the Dolanskys [interview], Sep, 711-16.

DOUBLE BLIND METHOD
A review of dry socket, Jan, 43-52.

DRUG INTERACTIONS
Dental care for the psychiatric patient: chronic schizophrenia, Nov, 912-9.
Dental management of anticoagulated patients, Oct, 838-44.
Naproxen: Pharmacology and dental therapeutics, May, 401-5.

DRY SOCKET - PREVENTION AND CONTROL
A review of dry socket, Jan, 43-52.

E

EDITORIAL
AIDS, Dec, 965.
Canada, Jul, 523.
Celebration, Jan, 7.
Communication, Mar, 167, Nov, 867.
Dental Implantation, Jul, 590.
Dentist-Patient Relations, Sep, 691.
Forecasting, Apr, 243.
Infection Control, Aug, 599, Oct, 775, Oct, 857.
Membership, Feb, 79, May, 339.
Telephone, Jun, 437.

EDUCATION, DENTAL
Clinical and non-clinical dental sciences, Apr, 302-4.

EDUCATION, DENTAL, CONTINUING
The Teaching of Geriatric Dentistry in Canada, Sep, 731-5.

EMPLOYMENT
Handle With Care: Staff Dismissals, Dec, 977-8.

ENDOCARDITIS, BACTERIAL
Congenital Cardiac Disease and Contemporary Dental Care of the Pediatric Patient, Mar, 208-12.
Dental Care for the Pediatric Cardiac Patient, Mar, 201-7.

ENVIRONMENTAL MONITORING
Assessment of the Effectiveness of Dental Sterilizers, Jun, 481-3.

EPINEPHRINE
Dental Anesthesia and Shoplifting, May 397-400.

EQUIPMENT CONTAMINATION
Assessment of the Effectiveness of Dental Sterilizers, Jun, 481-3.

EQUIPMENT FAILURE
Assessment of the Effectiveness of Dental Sterilizers, Jun, 481-3.

ESTERS
The pharmacology of local anesthetics, Jan, 34-42.

ESTHETICS
Function: The Basis of Facial Esthetics, Jun, 463-6.

ESTHETICS, DENTAL
Esthetic alternatives for posterior teeth, Oct, 820-3.
Psychosocial Predicators and Sequelae of Facial Changes, Jun, 459-62.

EXTRAORAL TRACTION HEADGEAR
Treatment of anterior cross-bites in the early mixed dentition, Jul, 574-9.

F

FACE
Psychosocial Predicators and Sequelae of Facial Changes, Jun, 459-62.

FACIAL NEURALGIA
Facial neuralgias: A clinical review of 34 cases, Sep, 752-5.

FACIAL PAIN
Facial neuralgias: A clinical review of 34 cases, Sep, 752-5.
Temporomandibular joint disorders, facial pain and headache following motor vehicle accidents, Jun, 488-95.

FACULTY, DENTAL
Clinical and non-clinical dental sciences, Apr, 302-4.
The Teaching of Geriatric Dentistry in Canada, Sep, 731-5.

FASCIITIS
Fatal necrotizing fasciitis of dental origin, Jan, 59-62.

FÉDÉRATION DENTAIRE INTERNATIONAL
Milan Congress, Mar, 175.

FLUMAZENIL
Benzodiazepine reversal with flumazenil, Apr, 307-10.

FLUORIDATION
Jun, 444-5.

G

GASTROINTESTINAL DISEASES
Nutritional deficiencies and gastrointestinal disorders in the edentulous elderly, Sep, 738-40.

GERIATRIC DENTISTRY
Apr, 255, Aug, 605.
The Teaching of Geriatric Dentistry in Canada, Sep, 731-5.

GLASS IONOMER CEMENTS
Résistance adhésive entre une base au verre ionomère photopolymérisable (Vitre-Bond) et une résine composite (p.50), May, 416-8.

GLOVES, SURGICAL
Jul, 527.
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.

GUTTA PERCHA
Gutta percha removal utilizing GPX instrumentation, Jan, 53-8.

H

HEADACHE
Temporomandibular disorders, facial pain and headache following motor vehicle accidents, Jun, 488-95.

HEALTH AND WELFARE CANADA
National Dental Epidemiology Project, Feb, 86.

HEALTH EDUCATION, DENTAL
April is Dental Health Month, Mar, 179.

HEART DEFECTS, CONGENITAL
Congenital Cardiac Disease and Contemporary Dental Care of the Pediatric Patient, Mar, 208-12.
Dental Care for the Pediatric Cardiac Patient, Mar, 201-7.

HEMOSTATICS
Comprehensive Care for Children with Bleeding Disorders - A Physician's Perspective, Feb, 115-8.
Dental management of anticoagulated patients, Oct, 838-44.

HEPATITIS B
A 1992 Update on Hepatitis B Vaccination, Jul, 569-70.
Infectious or not? The Handpiece Controversy, Apr, 281-2.
Meeting the Challenge of HIV and Hepatitis, Oct, 803.

HEPATITIS B - TRANSMISSION
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.

HIPPOCRATIC OATH
Jun, 454.

HIV INFECTIONS
Jan, 14.
Another Perspective of AIDS, May, 393-5.
The Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Meeting the Challenge of HIV and Hepatitis, Oct, 803.

HIV INFECTIONS - TESTING
Nov, 880-3.

HIV INFECTIONS - TRANSMISSION
The Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.
Infectious or not? The Handpiece Controversy, Apr, 281-2.

HUMAN ENGINEERING
Designing Better Dentistry: The Ergonomic Approach, Feb, 172-3.

HYDROGEN PEROXIDE
Vital bleaching, Aug, 654-63.

HYPERPLASIA
Inflammatory hyperplasias of the oral mucosa, Apr, 311-21.

I

INCISOR
Vertical Extrusion, Oct, 412-5.

INFECTION CONTROL
Addressing the Fears of HIV Transmission in Dental Practice, Mar, 193-5.
Assessment of the Effectiveness of Dental Sterilizers, Jun, 481-3.
Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.
Infectious or not? The Handpiece Controversy, Apr, 281-2.
Surface disinfection of saliva-contaminated dental X-ray film packets, Sep, 747-51.

INFECTIONS
Allergic reactions to spiramycin, Dec, 989-90.

INLAYS
Esthetic alternatives for posterior teeth, Oct, 820-3.

INSURANCE
Canadian Dentists' Insurance Program, Sep, 729-30.
Dentists speak out for the Canadian Dentists' Insurance Program, Jul, 551-4.
Dentists United, May, 349-50.
A Survival Guide for Dentists (Let's Talk), Apr, 279.

INSURANCE CARRIERS
Canadian Dentists' Insurance Program, Sep, 729-30.
Premium increases, insurance agents and brokers (Let's Talk), Feb, 102.

INSURANCE, LONG TERM CARE
CDIP: Better Than Ever (Let's Talk), Sep, 719.

INTERNATIONAL STANDARDS ORGANIZATION
Meeting, Dec, 970.

INTERPERSONAL RELATIONS
Strategic Alliances, Jan, 21.

INVESTMENTS
Using Time to Maximize Your RSP Investment, Nov, 945-6.

J

JAW, EDENTULOUS
Nutritional deficiencies and gastrointestinal disorders in the edentulous elderly, Sep, 738-40.

JAW, EDENTULOUS, PARTIALLY
Caractéristiques cliniques affectant le besoin de regarnissage des pièces de prothèses amovibles, Dec, 1015-24.
Considérations spéciales relatives aux pièces de prothèses amovibles, Nov, 934-42.

LES JOURNÉES DENTAIRES
Apr, 249.

L

LASERS
Lasers - The New Wave in Dentistry, Apr, 297-301.

LEADERSHIP
Leadership as the Foundation of Your Practice, Aug, 643-4.
Leadership: The Essential Ingredient for Practice Success, Sep, 703-4.

LETTERS
Advertising, Hersh, H., Sep, 687.
Canada, Kandelman, D., Oct, 779.
CDA Journal, Eisner, P.M., Feb, 95.
CDAnet, Kutzko, H., Feb, 95.
CDAnet, Turner, W.E., Jul, 521.
Celebration, Howard, W.W., Apr, 256.
Clindamycin, Hersh, H.A., Apr, 256.
Clindamycin, Swanson, A.E., May, 352-3.
Dental Hygienists, Frost, B., Jul, 521.
Dental Implants, Brymer, W.D., Mar, 190.
Fees, Dental, Austman, G.L., Jun, 435.
Fees, Dental, Berman, L., May, 352.
Fees, Dental, Read, B.D., Sep, 687-8.
Fees, Dental, Scott, K.W., Feb, 95-6.
Fluorosis, Zung, P., Oct, 780.
Hepatitis B., Gallagher, L., Oct, 779.
Infection Control, Arenson, L. and Sher, A.M., Jul, 520.
Infection Control, Balanyk, T.E., July 520.
Infection Control, Bazant, V., Jul, 520.
Infection Control, Black, K.M., Oct, 779.
Infection Control, Branicky, H.J., Sep, 688.
Infection Control, Clappison, R.A., Jul, 519.
Infection Control, Gregory, P., Jul, 519.
Infection Control, Grammer, H.A., Sep, 688.
Infection Control, Leibsohn, L., Oct, 779.
Infection Control, Lewis, D.L., Sep, 688-9.
Infection Control, Tarmet, T., Jul, 519.
Infection Control, Watson, R., Jul, 520.
Lasers, Hannigan, E.J., Oct, 779.
Magnification, Fiolek, D., May, 351.
Malignant Hyperthermia, McGirl, B.E., May, 351.
Membership, Lang, M.R., May, 351.
Orthodontic Appliances, Shipper, T.G., Dec, 973.
Orthodontics, Corrective, Stephens, R.G., Jan, 16.
Response: CDAnet, MacFarlane, D., Feb, 95.
Response: Clindamycin, Chapnick, P., May, 353.
Response: Infection Control, Hardie, J., Jul, 519-20, 520-21, Sep, 689.
Response: Malignant Hyperthermia, Haas, D., et al, May, 351-2.
Response: Orthodontics, Corrective, Levitt, H.L., Jan, 16, 63.
Romania, Johnsen, D.C., Feb, 95.
Science, Bosch, D., Feb, 96.

LEUKEMIA
Cancer in Children, Feb, 119-123

LEUKOPLAKIA, ORAL
Reverse smoking and its effects on the hard palate, Mar, 215-6.

LIBRARY
Aphthous Stomatitis, Jul, 532.
Dentin Sensitivity, Jun, 451.
Drug Use and Drug Interactions, Mar, 180.
Fluorides, Jan, 20.
Forensic Dentistry, Feb, 107.
Gutta-Percha, May, 354.
Halitosis, Nov, 886.
Library Services, Jan, 20.
Patient Acceptance and Planning of Dental Implants, Sep, 720.
Periodontal Diseases, Dec, 974.
Practice Building, Aug, 609.
Toothbrushes and Dentifrices, Oct, 781.
Ultrasonics, Apr, 260.

LICENSURE, DENTAL
Jun, 441.

LOYOLA UNIVERSITY
Sep, 698.

LYMPHOMA
Cancer in Children, Feb, 119-123.

M

MALIGNANT HYPERTHERMIA
Malignant hyperthermia and the general dentist, Jan, 28-33.

MALOCCLUSION
Psychosocial Predictors and Sequelae of Facial Change, Jun, 459-62.
Treatment of anterior cross-bites in the early mixed dentition, Jul, 574-9.

MANDIBLE
Caractéristiques cliniques affectant le besoin de regarnissage des pièces de prothèses amovibles, Dec, 1015-24.
Considérations spéciales relatives aux piéces de prothèses amovibles, Nov, 934-42.

MANITOBA DENTAL ASSOCIATION
Open Wide Program, Sep, 697.
President, Apr, 252.

MASS MEDIA
Another Perspective of AIDS, May, 393-5.

MAXILLA
Hemimaxillary odontogenic dysplasia, Feb, 153-4.

MAXILLOFACIAL PROSTHESIS
Prosthodontic rehabilitation of a patient with mucormycosis, Jul, 571-3.

MCGILL UNIVERSITY
Faculty of Dentistry, Mar, 175-6, Apr, 255, Aug, 605, Dec, 968.

MILITARY DENTISTRY
Jan, 11-2.

MOLAR
Esthetic alternatives for posterior teeth, Oct, 820-3.

MOLAR, THIRD - SURGERY
A review of dry socket, Jan, 43-52.
Risques et bénéfices de l'ablation des troisième molaires incluses - Partie 1, Sep, 756-66.
Risques et bénéfices de l'ablation des troisième molaires incluses - Partie 2, Oct, 845-52.

MONTREAL DENTAL CLUB
Executive, Sep, 696.

MONTREAL DENTAL SOCIETY
President, Aug, 605.

MOTIVATION
Aptitude + Attitude = Success, Aug, 635-6.

MOUTH DISEASES
Dental Considerations for the Pediatric Oncology Patient, Feb, 125-30.
Inflammatory hyperplasias of the oral mucosa, Apr, 311-21.

MOUTH MUCOSA
Inflammatory hyperplasias of the oral mucosa, Apr, 311-21.

MOUTH NEOPLASMS
Inflammatory hyperplasias of the oral mucosa, Apr, 311-21.

MUCORMYCOSIS
Prosthodontic rehabilitation of a patient with mucormycosis, Jul, 571-3.

N

NAPROXEN
Naproxen: Pharmacology and dental therapeutics, May, 401-5.

NASAL SEPTUM
Function: the basis of facial esthetics, Jun, 463-6.

NECROSIS
Fatal necrotizing fasciitis of dental origin, Jan, 56-62.

NEOPLASMS
Dental Considerations for the Pediatric Oncology Patient, Feb, 125-30.

NEOPLASMS - THERAPY
Cancer in Children, Feb, 119-23.

NEW BRUNSWICK
Dentists Overcome AIDS Rumors, May, 388-90.

NEW BRUNSWICK DENTAL SOCIETY
Executive, Aug, 605.
Registar, Sep, 695.

NEWFOUNDLAND
Dentists Overcome AIDS Rumors, May, 388-90.

NUTRITION
Nutritional deficiencies and gastrointestinal disorders in the edentulous elderly, Sep, 738-40.

O

OBITUARIES
Albanese, A.L., Feb, 92.
Atkinson, W.E., Feb, 92.
Baker, O.C., Dec, 972.
Baxendale, C.J., Apr, 255.
Carmichael, I.J., Dec, 972.
Crockford, M.J., Aug, 608.
Curtis, W., Aug, 608.
Cyr, P.F., Apr, 255.
Dick, J., Apr, 255.
Evans, G.C., Dec, 972.
Everett, V.E., Jun, 446.
Fraser, R.J., Feb, 92.
Foster, K.R., Dec, 972.
Gertz, S., Feb, 92.
Gitnick, P.J., Aug, 608.
Gordon, K.M., Dec, 972.
Greenlaw, R.M., Aug, 608.
Haiden, J.A., Feb, 92.
Hart, D.A., Dec, 972.
Haselton, L.D., Jun, 446.
Hoe, R.C-M., Dec, 972.
Hunt, C., Dec, 972.
Johnston, B.M., Dec. 972.
Johnston, W.J., Aug, 608.
Katz, S., Jun, 446.
Kovitz, D.M., Apr, 255.
Leatherman, G., May, 343.
MacGregor, S.A., May, 343-4.
Marriott, C.J., Jun, 446.
McAnulty, K.P., Feb, 92.
McCabe, C.A., Dec, 972.
McColl, T.D., Dec, 972.
McCullough, N.A., Apr, 255.
McKechnie, D.C., Apr, 255.
Miner, J.A., Dec, 972.
Metcalfe, I.J., Jun, 446.
Misener, H.B., Aug, 608.
Mou, J.B., Aug, 608.
O'Brien, J.B., Jun, 446.
Poirier, F., Jun, 446.
Purdie, J.E., Dec, 972.
Richardson, M.M., Jun, 447.
Scott, W.C., Apr, 255.
Simon, N.L., Apr, 255.
Smith-Windsor, B., Apr, 256.
Stadig, R.P., Aug, 608.
Stanziani, V., Aug, 608.
Storms, J.L., Jun, 447.
Strelioff, M.G., Feb, 92.
Thorton, H.M., Jun, 441
Truemner, N.P. Dec, 972.
Woytuck, J., Apr, 256.
Wright, O.M., Dec, 972.
Yamazaki, K., Oct, 784.
Young, D., Apr, 252.

ODONTOGENESIS IMPERFECTA
Hemimaxillary odontogenic dysplasia, Feb, 153-4.

ONTARIO ASSOCIATION OF ORTHODONTISTS
Executive, Jun, 441.

ONTARIO DENTAL ASSOCIATION
Executive, Jul, 527.

ORAL HEALTH
Dental care for the psychiatric patient: chronic schizophrenia, Nov, 912-9.
The role of saliva in oral health and the causes and effects of xerostomia, Mar, 217-21.

ORAL HYGIENE
Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children, Nov, 921-33.

ORAL MANIFESTATIONS
Dental care for the psychiatric patient: chronic schizophrenia, Nov, 912-9.

ORDER OF CANADA
Feb, 85-6.

ORTHODONTIC APPLIANCES
Treatment of anterior cross-bites in the early mixed dentition, Jul, 574-9.
Twin Block Appliances, Oct, 858.

ORTHODONTICS, CORRECTIVE
Psychological Predicators and Sequelae of Facial Change, Jun, 459-62.

OSSEOINTEGRATION
Implant Dentistry [interview], Jul, 555-9.

OTTAWA DENTAL SOCIETY
Jan, 11.

P

PAIN, POSTOPERATIVE
Naproxen: Pharmacology and dental therapeutics, May, 401-5.

PALATAL OBTURATORS
Prosthodontic rehabilitation of a patient with mucormycosis, Jul, 571-3.

PALATE
Reverse smoking and its effects on the hard palate, Mar, 215-6.

PARTNERSHIP PRACTICE, DENTAL - LEGISLATION & JURISPRUDENCE
Who's Got the Patient?, Oct, 806-9.

PATHOLOGY, ORAL
Oral Pathology in Canada: A survey, Aug, 647-52.

PATIENT ACCEPTANCE OF HEALTH CARE
Getting Patients to Say Yes, Aug, 619-20.
Perio and Practice Management, Aug, 627-9.

PATIENT CARE PLANNING
Comprehensive Care for Children With Bleeding Disorders - A Physician's Perspective, Feb, 115-8.

PATIENTS
Patient Profiles, Jun, 457.

PERIODONTAL DISEASES
Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children, Nov, 921-33.
Perio and Practice Management, Aug, 627-9.

PERIODONTAL LIGAMENT
Factors influencing repair and regeneration following replantation, May, 407-11.

PERIODONTAL SPLINTS
Factors influencing repair and regeneration following replantation, May, 407-11.

PEROXIDES
Vital tooth bleaching, Aug, 654-63.

PHARMACOLOGY
The pharmacology of local anesthetics, Jan, 34-42.

PHILIPPINES
Reverse smoking and its effects on the hard palate, Mar, 21-6.

PHYSICIAN IMPAIRMENT
Keeping Your Practice Afloat in Your Absence, Feb, 97-8.

PIT AND FISSURE SEALANTS
The Preventive Resin Restoration: A Conservative Alternative, Mar, 197-200.
A retrospective cohort evaluation of preventive resin restorations, Mar, 223-6.

POST AND CORE TECHNIQUE
A preliminary comparative study of the retentive properties of four post and core systems in etched preparations, Aug, 665-70.

PRACTICE MANAGEMENT, DENTAL
Aptitude + Attitude = Success, Aug, 635-6.
The Dental Practice Purchase/Sale, Aug, 637-41.
Goodwill - Your Most Valuable Asset, Aug, 613-4.
Hiring the Best and the Brightest, Oct, 793-4.
Leadership as the Foundation of Your Practice, Aug, 643-4.
Perio and Practice Management, Aug, 627-9.
Working Smarter Not Harder, Aug, 631-3.

PRACTICE MANAGEMENT, DENTAL - LEGISLATION & JURISPRUDENCE
Who's Got the Patient?, Oct, 806-9.

PRACTICE MANGEMENT & SUCCESS [series]
Designing Better Dentistry: The Ergonomic Approach, Feb, 172-3.
Fair Pay and Then Some, Nov, 895-6.
Getting Patients to Say Yes, Aug, 619-20.
Handle With Care: Staff Dismissals, Dec, 977-8.
Keeping Your Practice Afloat in Your Absence, Feb, 97-8.
Leadership: The Essential Ingredient for Practice Success, Sep, 703-4.
Make Mine Modular, Jul, 535-6.
Making Every Minute Count, May, 359-60.
Making Every Minute Count, Jun, 453-4.

Plugging into Technology, Apr, 267-70.
Strategic Alliances, Jan, 21-2.

PREMEDICATION
Congenital Cardiac Disease and Contemporary Dental Care of the Pediatric Patient, Mar, 208-12.
Dental Care for the Pediatric Cardiac Patient, Mar, 201-7.

PRESIDENT'S COLUMN
Budgets, Mar, 169.
CDA Organization, May, 341.
CDSPI, Feb, 81.
Communication, Jan, 9.
Dental Hygienists, Apr, 247.
FDI, Nov, 869.
Meetings, Jul, 525.
Membership, Oct, 777, Dec, 967.
Organized Dentistry, Sep, 693.
Professionalism, Jun, 439.
Reflections, Aug, 601.

PRILOCAINE
Dental Anesthesia and Shoplifting, May, 397-400.

PROSTHESIS FAILURE
Longevity of partial, complete and fixed prostheses, Jun, 500-4.

PSYCHOTROPIC DRUGS
Dental care for the psychiatric patient: chronic schizophrenia, Nov, 912-9.

PUBLISHING
Clinical and non-clinical dental sciences, Apr, 302-4.

Q

QUÉBEC
Comparison of dental caries and oral hygiene indices for 13-14 year old Quebec children, Nov, 921-33.
Factors Affecting the Future Need for Dental Manpower in Canada and Quebec, Dec, 1005-14.
Temps de mise en place de la digue de caoutchouc par des finissants en médecine dentaire de l'Université de Montréal, Mar, 228-9.

QUESTIONNAIRES
The Attitudes and Concerns of Canadian Dental Health Care Workers Toward Infection Control, Feb, 131-8.
Dental anxiety: differentiation, identification and behavioral management, Jul, 580-5.
Perio and Practice Management, Aug, 627-9.
Stress factors and coping strategies in the dental profession, Nov, 905-11.

R

RADIOGRAPHY, DENTAL
A critical view of the rationale for routine, initial and periodic radiographic surveys, Oct, 825-37.
Surface disinfection of saliva-contaminated dental X-ray film packets, Sep, 747-51.

RCMP
May, 343.

REFERRALS AND CONSULTATIONS
CDA Guidelines for Referring Patients, Nov, 878-80.
Perio and Practice Management, Aug, 627-9.

REGENERATION
Factors influencing repair and regeneration following replantation, May, 407-11.

RESEARCH
Clinical and non-clinical dental sciences, Apr, 302-4.

RETIREMENT
Stibbs, G., Sep, 697.

RETROSPECTIVE STUDIES
A retrospective cohort evaluation of preventive resin restorations, Mar, 223-6.

REVIEW ARTICLE
The base metal alloy question in removable partial dentures, Sep, 146-51.
Benzodiazepine reversal with flumazenil, Apr, 307-10.
Does HIV Cause AIDS?, Sep, 721-8.
Nutritional deficiences and gastrointestinal disorders in the edentulous elderly, Sep, 738-40.
Pharmacology of local anesthetics, Jan, 34-42.
Subcutaneous emphysema following dental treatment, Jun, 496-9.
Vertical extrusion, May, 412-5.
Vital tooth bleaching, Aug, 654-63.

RHEUMATIC FEVER
Dental Care for the Pediatric Cardiac Patient, Mar, 201-7.

RISK FACTORS
A 1992 Update on Hepatits B Vaccination, Jul, 569-70.
Another Perspective of AIDS, May, 393-5.

ROOT CANAL FILLING MATERIALS
Gutta percha removal utilizing GPX instrumentation, Jan, 53-8.

ROOT CANAL THERAPY
Subcutaneous emphysema following dental treatment, Jun, 496-9.
Vertical Extrusion, May, 412-5.

ROOT CANAL THERAPY - ADVERSE EFFECTS
Gutta percha removal utilizing GPX instrumentation, Jan, 53-8.

ROOT RESORPTION
Factors influencing repair and regeneration following replantation, May, 407-11.

ROYAL COLLEGE OF DENTISTS OF CANADA
Sep, 695-6.

RUBBER DAMS
Temps de mise en place de la digue de caoutchouc par des finissants en médecine dentaire de l'Université de Montréal, Mar, 228-9.

S

SALVIA
Management of xerostomia, Feb, 140-3.
The role of saliva in oral health and the causes and effects of xerostomia, Mar, 217-21.
Surface disinfection of saliva-contaminated dental X-ray film packets, Sep, 747-51.

SCHIZOPHRENIA
Dental care for the psychiatric patient: chronic schizophrenia, Nov, 912-9.

SCHOOLS, DENTAL
Clinical and non-clinical dental sciences, Apr, 302-4.
Factors Affecting the Future Need For Dental Manpower in Canada and Quebec, Dec, 1005-14.
The Teaching of Geriatric Dentistry in Canada, Sep, 731-5.
Temps de mise en place de la digue de caoutchouc par des finissants en médecine dentaire de l'Université de Montréal, Mar, 228-9.

SELF CONCEPT
Aptitude + Attitude = Success, Aug, 635-6.
Psychosocial Predictors and Sequelae of Facial Change, Jun, 459-62.

SMOKING
Reverse smoking and its effects on the hard palate, Mar, 215-6.

SPIRAMYCIN - ADVERSE EFFECTS
Allergic reaction to spiramycin, Dec, 889-90.

SPLINTS
The Unique Thermo-Elastic Acrylic Splint, Feb, 99.

SPORES, BACTERIAL
Assessment of the Effectiveness of Dental Sterilizers, Jun, 481-3.

SPORTS
Dental injuries at the 1989 Canada Games, Oct, 810-5.

STERILIZATION
Mar, 176.
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.

STERILIZATION - INSTRUMENTATION - METHODS
Assessment of the Effectiveness of Dental Sterilizers, Jun, 481-3.

STOMATITIS, HERPETIC
Dec, 984.

STRESS
Malignant hyperthermia and the general dentist, Jan, 28-33.

STRESS, PSYCHOLOGICAL - ETIOLOGY - PREVENTION & CONTROL
Stress factors and coping strategies in the dental profession, Nov, 905-11.

STUDENTS, DENTAL
Temps de mise en place de la digue de caoutchouc par des finissants en médecine dentaire de l'Université de Montréal, Mar, 228-9.

SUBCUTANEOUS EMPHYSEMA
Subcutaneous emphysema following dental treatment, Jun, 496-9.

SUBSTANCE ABUSE
Brandon, Robert [interview], Nov, 900-4.

T

TAXES
The Dental Practice Purchase/Sale, Aug, 637-41.

TELEPHONE
Phone Finesse, Jan, 27.

TEMPOROMANDIBULAR JOINT DISEASES
Temporomandibular joint disorders, facial pain and headache following motor vehicle accidents, Jun, 488-95.

THEFT
Dental Anesthesia and Shoplifting, May, 397-400.

THROMBOSIS - THERAPY
Dental treatment of anticoagulated patients, Oct, 838-44.

TIME AND MOTION STUDIES
Making Every Minute Count, May, 359-60.
Making Every Minute Count, Jun, 453-4.
Working Smarter Not Harder, Aug, 631-3.

TITANIUM
Procera: A New Concept in Crown & Bridge, Dec, 985-8.
Titanium - The Metal of the Gods, Jul, 568.

TOOTH - INJURIES
Dental Injuries at the 1989 Canada Games, Oct, 810-5.

TOOTH BLEACHING
Vital tooth bleaching, Aug, 654-663.

TOOTH DISCOLORATION
Vital tooth bleaching, Aug, 654-663.

TOOTH FRACTURES
Vertical Extrusion, May 412-5.

TOOTH, IMPACTED - SURGERY
Risques et bénéfices de l'ablation des troisième molaires incluses - Partie 1, Sep, 756-66.
Risques et bénéfices de l'ablation des troisième molaires incluses - Partie 2, Oct, 845-52.

TOOTH MOVEMENT, MINOR
Vertical Extrusion, May, 412-5.

TOOTH REPLANTATION
Factors influencing repair and regeneration following replantation, May, 407-11.

TOOTH ROOT
Vertical Extrusion, May, 412-5.

TRIGEMIANAL NEURALGIA
Facial neuralgias: A clinical review of 34 cases, Sep, 752-5.

U

UNITED STATES NATIONAL COMMISSION ON AIDS
Nov, 880-3.

UNIVERSAL PRECAUTIONS
Concerns Regarding Infection Control Recommendations for Dental Practice, May, 377-86.

UNIVERSITY OF BRITISH COLUMBIA
Assessment of the Effectiveness of Dental Sterilizers, Jun, 481-3.

UNIVERSITY OF MANITOBA
Denture identification: The University of Manitoba's denture identification service, Sep, 743-6.

V

VASOCONSTRICTOR AGENTS
Malignant hyperthermia and the general dentist, Jan, 28-33.

VIDEOTAPE RECORDING
Working Smarter Not Harder, Aug, 631-3.

VIRAL HEPATITIS VACCINES
A 1992 Update on Hepatitis B Vaccination, Jul, 569-70.

VOLUNTEER DENTISTRY
Feb, 86-91.

W

WEATHER
Dec, 970.

WEST INDIES
Reverse smoking and its effects on the hard palate, Mar, 215-6.

WHIPLASH INJURIES
Temporomandibular disorders, facial pain and headache following motor vehicle accidents, Jun, 488-95.

X

X-RAY FILM
Surface disinfection of saliva-contaminated dental X-ray film packets, Sep, 747-51.

XEROSTOMIA
The role of saliva in oral health and the causes and effects of xerostomia, Mar, 217-21.

XEROSTOMIA - THERAPY
Management of xerostomia, Feb, 140-3.

Y

A YEAR OF CELEBRATION
Jan, 16, Feb, 83, Mar, 171, Apr, 248, May, 346, Jun, 440, Aug, 603, Sep, 700, Oct, 791.

Z

ZARB, GEORGE
Implant Dentistry [interview], Jul, 555-9.

BOOK REVIEW INDEX

B

Bellizzi, R. and Loushine, R., A Clinical Atlas of Endodontic Surgery, reviewed by M.D. Peikoff, Aug, 604.

C

Cohen, S. and Burns, R.C., Pathways of the Pulp, reviewed by M. Gelfand, Oct, 797.

E

Enlow, D.H., Facial Growth, 3rd edition, reviewed by M. Wechsler, Nov, 885.

F

Freedman, G.A. and McLaughlin, G.L., Color Atlas of Porcelain Laminate Veneers, reviewed by H. Baltadjian, Mar, 190.

Fricton, J.R., Kroening, R.J. and Hathaway, K.M., TMJ and Craniofacial Pain: Diagnosis and Management, reviewed by R.H.B. Goodday, Sep, 706.

G

Gutmann, J.L. and Harrison, J.W., Surgical Endodontics, reviewed by W.H. Christie, Apr, 262.

H

Hamada, S., Holt, S.C. and McGhee, J.R., Periodontal Disease: Pathogens and Host Immune Responses, reviewed by C.A.G. McCulloch, Oct, 797.

Harris, N.O. and Christen, A.G., Primary Preventive Dentistry, reviewed by D. Clark, Jul, 537-8.

Horsted-Bindslev, P., Magos, L., Holmstrup, P., and Arenholt-Bindslev, D., Dental Amalgam - A Health Hazard?, reviewed by P. Williams, Mar, 189.

K

Kandelman, D., Keep Your Smile, reviewed by M. Maslove, Nov, 884.

L

Lawson, H.W. and Blazucki, J.L., Bench Top Orthodontics, reviewed by D. Hone, Jul, 537.

Lindhe, J., Textbook of Clinical Periodontology, 3rd edition, reviewed by H.G. Scott, Dec, 979.

M

Malamed, S.F., Handbook of Local Anesthesia, 3rd edition, reviewed by E.R. Young, Nov, 884.

Martognoni, M. and Schonenberger, A., Precision Fixed Prosthodontics: Clinical and Laboratory Aspects, reviewed by J.J. Carpendale, Aug, 604.

McCabe, J.F., Applied Dental Materials, 7th edition, reviewed by E.J. Sutow, Apr, 261-2.

McLaughlin, G. and Freedman, G.A., Color Atlas of Tooth Whitening, reviewed by P. Tiplitsky, Nov, 884-5.

Miles, S.A., Kaugars, G.E., Van Dis, M. and Lovas, J.G.L., Oral & Maxillofacial Radiology: Radiologic Pathologic Correlations, reviewed by C. Price, Sep, 705.

N

Melson, B., Current Controversies in Orthodontics, reviewed by F. Popovich, Dec, 980.

Newbrun, E., Cariology, 3rd edition, reviewed by H. Limeback, Mar, 189.

Newman M. and Kornman, K., Antibiotic/Antimicrobial Use in Dental Practice, reviewed by R.P. Ellen, May, 376.

O

Orton, H.S., Functional Appliances in Orthodontic Treatment, reviewed by C. Mills, Jul, 537.

P

Paterson, R.C., Watts, A., Saunders, W.P. and Pitts, N.B., Modern Concepts in the Diagnosis and Treatment of Fissure Caries, reviewed by G. Nikiforuk, Oct, 797-8.

Phillips, R.W., Skinner's Science of Dental Materials, 9th edition, reviewed by Z. Kasloff, Apr, 261.

R

Riediger, M. and Ehrenfield, M., editors, Microsurgical Tissue Transplantation, reviewed by R.G. Stapleford, Feb, 108.

S

Som, P.M. and Bergeron, T., editors, Head and Neck Imaging, reviewed by C. Price, Sep, 705.

Stene, J.K. and Grande, C.M., editors, Trauma Anesthesia, reviewed by E.R. Young, Feb, 108-9.

Sykora, O., Maritime Dental College and Dalhousie Faculty of Dentistry - A History, reviewed by P.R. Crawford, May, 375-6.

T

Thys, D.M. and Kaplan, J.A., editors, The ECG in Anesthesia and Critical Care, reviewed by E.R. Young, Feb, 108.

Wood, P.R., Cross Infection Control in Dentistry: A Practical Illustrated Guide, reviewed by J. Hardie, May, 375.

NEW NON-NARCOTIC

TORADOL®

10mg TABLETS & 30mg IM INJECTIONS (KETOROLAC TROMETHAMINE)

NARCOTIC EFFICACY WITHOUT NARCOTIC DRAWBACKS

TORADOL (ketorolac tromethamine) 10 mg tablets
TORADOL IM (ketorolac tromethamine) 15 mg/mL and 30 mg/mL intramuscular injections

THERAPEUTIC CLASSIFICATION

Analgesic Agent

ACTION

Toradol (ketorolac tromethamine) is a non-steroidal anti-inflammatory drug that exhibits analgesic activity. Its mode of action is to inhibit the cyclo-oxygenase enzyme system, thereby inhibiting the synthesis of prostaglandins, and is considered to be a peripherally acting analgesic. At analgesic doses it has minimal anti-inflammatory and antipyretic activity.

Ketorolac tromethamine is rapidly and completely absorbed when administered by both the oral and intramuscular routes, and pharmacokinetics are linear following single and multiple dosing.

Steady state plasma levels are attained after one day of Q.I.D. dosing. Based only on pharmacokinetic principles, a faster attainment of the steady state plasma level might be achieved with a loading dose of about twice the maintenance dose. This occurs when the dosing interval is approximately equal to the drug's half-life.

Following oral administration, peak plasma concentrations of 0.52 to 1.31 mcg/ml occurred 35 minutes after a single 10 mg dose. The terminal plasma elimination half-life ranged between 4.1 and 6.1 hours in healthy adults, while in elderly subjects (mean age: 72 years) it ranged between 3.0 and 6.1 hours. A high fat diet decreased the rate but not the extent of absorption of oral ketorolac tromethamine, while antacid had no effect.

Following intramuscular administration, peak plasma concentrations of 2.2 to 3.0 mcg/ml occurred an average of 50 minutes after a single 30 mg dose. The terminal plasma half-life ranged between 3.8 and 6.3 hours in young adults and between 4.4 and 8.6 hours in elderly subjects (mean age: 72).

The primary route of excretion of ketorolac tromethamine and its metabolites (conjugates and the p-hydroxy metabolite) is in the urine (91.4%) and the remainder is excreted in the feces.

More than 99% of the ketorolac in plasma is protein bound over a wide concentration range.

INDICATIONS

Orally administered Toradol (ketorolac tromethamine) is indicated for the short-term management of mild to moderately severe pain, including post-surgical pain (such as general, orthopedic and dental surgery), acute musculoskeletal trauma pain and post-partum uterine cramping pain.

Intramuscular injection of Toradol is indicated for the short-term management of moderate to severe pain, including pain following major abdominal, orthopedic and gynecological operative procedures.

CONTRAINDICATIONS

Toradol (ketorolac tromethamine) should not be used where there is a known or suspected hypersensitivity to the drug. Because of the possibility of cross-sensitivity, ketorolac tromethamine should not be used in patients in whom acetylsalicylic acid (ASA) or other non-steroidal anti-inflammatory agents induce acute asthmatic attacks, urticaria, rhinitis or other allergic manifestations. Fatal anaphylactoid reactions may occur in such individuals.

Toradol (ketorolac tromethamine) also should not be used in patients with peptic ulcer or active inflammatory disease of the gastrointestinal system.

WARNINGS

Long-term administration of ketorolac tromethamine oral formulation has shown that this drug shares the risks that other non-steroidal anti-inflammatory drugs pose to patients when taken chronically. Peptic ulceration, perforation and gastrointestinal bleeding, sometimes severe and occasionally fatal have been reported during therapy with non-steroidal anti-inflammatory drugs and may occur with ketorolac tromethamine, both in the presence or absence of previous symptoms. Elderly and debilitated individuals are most susceptible to these complications, the incidence of which increases with dose and duration of treatment. Close medical supervision is recommended in patients prone to gastrointestinal tract irritation, particularly those with a history of peptic ulcer, diverticulosis or other inflammatory disease of the gastrointestinal tract. In these cases the physician must weigh the benefits of treatment against the possible hazards.

Patients taking any non-steroidal anti-inflammatory drug including ketorolac tromethamine should be instructed to contact a physician immediately if they experience symptoms or signs suggestive of peptic ulceration or gastrointestinal bleeding. These reactions can occur at any time during the treatment. If peptic ulceration is suspected or confirmed, or if gastrointestinal bleeding occurs, ketorolac tromethamine should be discontinued and appropriate treatment instituted and the patient closely monitored.

Ketorolac tromethamine is not recommended for routine use with other non-steroidal anti-inflammatory drugs because of the potential for additive side effects.

Use in pregnancy, lactation and labour: The administration of ketorolac tromethamine is not recommended during pregnancy or lactation.

Ketorolac tromethamine is not recommended for use as an obstetrical preoperative medication or for obstetrical analgesia because of the known effects of non-steroidal anti-inflammatory drugs on uterine contraction and fetal circulation.

Use in children: Safety and efficacy in children have not been established. Therefore, Toradol is not recommended for use in children under age 16.

Use in the elderly: Because ketorolac is cleared somewhat more slowly by the elderly (See PHARMACOKINETICS) who are also more sensitive to the renal effects of non-steroidal anti-inflammatory drugs, extra caution and the lowest effective dose should be used.

PRECAUTIONS

Renal effects: As with other drugs that inhibit prostaglandin biosynthesis, elevations of blood urea nitrogen (BUN) and creatinine have been reported in clinical trials with ketorolac tromethamine. Since ketorolac tromethamine and its metabolites are excreted primarily by the kidney, patients with significant impairment of renal function (serum creatinine values greater than 5 mg/dL) should not receive ketorolac tromethamine unless the expected benefits outweigh the risks. In patients with moderately impaired renal function serum creatinine values ranging from 1.9 to 5.0 mg/dL, the rate of ketorolac clearance was reduced to approximately half of normal. The total daily dose of ketorolac tromethamine should be reduced by half in such patients. The disposition of ketorolac in dialysis patients has not been studied.

Patients who are volume depleted because of blood loss or severe dehydration may be dependent on renal prostaglandin production to maintain renal perfusion and therefore glomerular filtration rate. In such situations the use of drugs which inhibit prostaglandin synthesis might be expected to further decrease renal blood flow. Caution is advised if ketorolac tromethamine is used in such circumstances. Close monitoring of urine output, serum urea and serum creatinine is recommended until the patient is normovolemic.

Hepatic effects: Meaningful elevations (greater than 3 times normal) of serum transaminases (glutamate pyruvate (SGPT or ALT) and glutamic oxalacetic (SGOT or AST)) occurred in controlled clinical trials in less than 1% of patients. If clinical signs and symptoms consistent with liver disease develop, or if systemic manifestations occur (e.g., eosinophilia, rash, etc.), ketorolac tromethamine should be discontinued. Patients with impaired hepatic function from cirrhosis do not have any clinically important changes in ketorolac tromethamine clearance. Studies in patients with active hepatitis or cholestasis have not been performed

Fluid and electrolyte balance: Fluid retention and edema have been observed in patients treated with Toradol. Therefore, as with many other non-steroidal anti-inflammatory drugs, the possibility of precipitating congestive heart failure in elderly patients or those with compromised cardiac function should be borne in mind. Toradol should be used with caution in patients with cardiac decompensation, hypertension or other conditions predisposing to fluid retention.

Hematologic effects: Ketorolac tromethamine inhibits platelet function and may prolong bleeding time. It does not affect platelet count, prothrombin time (PT) or partial thromboplastin time (PTT). Patients who have coagulation disorders or are receiving drug therapy that interferes with hemostasis should be carefully observed when ketorolac tromethamine is administered. Unlike the prolonged effects from aspirin, the inhibition of platelet function by ketorolac tromethamine is normalized within 24 to 48 hours after the drug is discontinued.

Blood dyscrasias associated with the use of non-steroidal anti-inflammatory drugs are rare, but could occur with severe consequences.

Infection: In common with other anti-inflammatory drugs, ketorolac tromethamine may mask the usual signs of infection.

Drug Interactions: Toradol (ketorolac tromethamine) is highly bound to human plasma protein (mean 99.2%) and binding is independent of concentration.

Prothrombin time should be carefully monitored in all patients receiving oral anticoagulant therapy concomitantly with ketorolac tromethamine.

Ketorolac tromethamine does not alter digoxin protein binding.

In vitro studies indicated that at therapeutic concentrations of salicylates (300 mcg/mL), the binding of ketorolac tromethamine was reduced from approximately 99.2% to 97.5%. Therapeutic concentrations of digoxin, warfarin, acetaminophen, phenytoin, tolbutamide and piroxicam did not alter ketorolac tromethamine protein binding. Since ketorolac tromethamine is a highly potent drug and present in low concentrations in plasma, it would not be expected to displace other protein-bound drugs significantly.

There is no evidence in animal or human studies that ketorolac tromethamine induces or inhibits the hepatic enzymes capable of metabolizing itself or other drugs. Hence, it would not be expected to alter the pharmacokinetics of other drugs due to enzyme induction or inhibition mechanisms.

Ketorolac tromethamine mildly reduces the diuretic response to furosemide in normovolemic subjects. Inhibition of renal lithium clearance leading to an increase in plasma lithium concentration and potential lithium toxicity has been reported with some non-steroidal anti-inflammatory drugs. The effect of ketorolac tromethamine on lithium plasma levels has not been studied.

Concomitant administration of methotrexate and some non-steroidal anti-inflammatory drugs have been reported to reduce the clearance of methotrexate, enhancing the toxicity of methotrexate. The effect of ketorolac tromethamine on methotrexate clearance has not been studied.

There is limited experience on concurrent administration with morphine. Available information shows no evidence of adverse interactions. The extent of a possible narcotic-sparing effect of ketorolac tromethamine is currently under investigation.

ADVERSE EFFECTS

Toradol tablets: The incidence of adverse reactions in approximately 600 patients and subjects receiving short-term oral therapy (less than 2 weeks) with Toradol (ketorolac tromethamine) are listed below. The most common adverse effects include: Gastrointestinal: dyspepsia (2%), gastrointestinal pain (2%), nausea (2%). Central nervous system: headache (2%), dizziness (2%).

The following adverse events are rare but have been reported (less than 1%): Gastrointestinal: flatulence, gastritis. Respiratory: dyspnea. Dermatologic: urticaria, rash, pruritus. Metabolism/nutritional: edema. Body as a whole: asthenia. Hemic and lymphatic: purpura. Musculoskeletal: myalgia.

Toradol IM: The adverse reactions listed below were reported to be probably related to Toradol IM in clinical trials in which patients received up to 20 doses of 30 mg of intramuscularly administered Toradol over a period of up to five days.

Incidence between 3 and 9%: Gastrointestinal: nausea, dyspepsia, gastrointestinal pain. Central nervous system: drowsiness.

Incidence between 1 and 3%: Gastrointestinal: diarrhea. Central nervous system: dizziness, headache, sweating. Body as a whole: edema. Injection site pain was reported by 2% of patients in multi-dose studies (vs. 5% for morphine control group).

Incidence 1% or less: Gastrointestinal: constipation, flatulence, gastrointestinal fullness, liver function abnormalities, melena, peptic ulcer, rectal bleeding, stomatitis, vomiting. Body as a whole: asthenia, myalgia. Cardiovascular: vasodilatation, pallor. Hemic and lymphatic: purpura. Nervous system: dry mouth, nervousness, paresthesia, abnormal thinking, depression, euphoria, excessive thirst, inability to concentrate, insomnia, stimulation, vertigo. Respiratory: dyspnea, asthma. Urogenital: increased urinary frequency, oliguria. Dermatologic: pruritus, urticaria. Special senses: abnormal taste, abnormal vision.

OVERDOSAGE

The absence of experience with acute overdosage precludes characterization of sequelae and assessment of antidotal efficacy at this time. In a gastroscopic study of healthy subjects, daily doses of 360 mg given over an 8-hour interval for each of five consecutive days (3 times the highest recommended dose) caused abdominal pain and peptic ulcers which recovered after discontinuation of dosing.

DOSAGE AND ADMINISTRATION

Adults: Dosage should be adjusted according to the severity of the pain and the response of the patient.

Oral: The usual oral dose of Toradol (ketorolac tromethamine) is 10 mg every 4 to 6 hours for pain as required. Doses exceeding 40 mg per day are not recommended.

Toradol is recommended for short-term use only i.e. for a maximum of a few weeks.

Parenteral: The recommended usual initial dose is 30 mg. Subsequent dosing may be 10 mg to 30 mg every 4-6 hours as needed to control pain. A lower initial dose may be suitable for patients under 50 kg in body weight, over age 65 years and/or with less severe pain at baseline. In the initial post-operative period, more frequent dosing (e.g., every 2 hours) may be employed, but the total daily dose should not exceed 120 mg. Dose above 120 mg could cause drug toxicity (see Warnings & Precautions). If supplemental analgesia is required, a concomitant low dose of opiate can be used.

The administration of continuous multiple daily doses of Toradol IM should not exceed 5 days for Injection dosing. There has been limited experience with dosing for more than 5 days since the vast majority of patients have transferred to oral medication or no longer required analgesic therapy after this time.

Directions for use: Insert the plunger into the syringe barrel and thread it onto the screw. WITHOUT REMOVING THE NEEDLE GUARD, apply quick, firm pressure to the plunger to break the inner seal (you will feel it let go). Pull back on the plunger slightly to relieve pressure. Remove the needle guard by twisting as you pull. Use the unit as you would a normal syringe. Dispose of properly.

CONVERSION FROM PARENTERAL TO ORAL THERAPY

Toradol tablets may be used either as monotherapy or as follow-on therapy to parenteral ketorolac. In the latter case, the total combined daily dose of ketorolac should not exceed 120 mg on the day the change of formulation is made, this includes a maximum of 4 of the 10 mg tablets.

Toradol (ketorolac tromethamine) is a Schedule F drug.

COMPOSITION

Toradol Tablets: Each Toradol tablet contains ketorolac tromethamine, the active ingredient, with microcrystalline cellulose, lactose and magnesium stearate. The coating suspension contains hydroxy-propyl-methylcellulose, titanium dioxide and polyethylene glycol.

Toradol IM: Toradol IM is available for intramuscular administration as: 15 mg in 1 mL (1.5%), or 30 mg in 1 mL (3%) of ketorolac tromethamine in sterile solution. The 15 mg/mL solution contains 10% (w/v) alcohol, USP, and 6.68 mg sodium chloride in sterile water. The 30 mg/mL solution contains 10% (w/v) alcohol, USP and 4.35 mg sodium chloride in sterile water. The pH is adjusted with sodium hydroxide or hydrochloric acid. The sterile solutions are clear and slightly yellow in colour.

STABILITY AND STORAGE RECOMMENDATIONS

Toradol Tablets: Store at room temperature. The blister package tablets should be protected from light

Toradol IM: Store at room temperature with protection from light.

AVAILABILITY OF DOSAGE FORMS

Toradol (ketorolac tromethamine) is available as 10 mg white round film coated tablets with one side printed in red with TORADOL inside a bold T and the other side with Syntex. Toradol (ketorolac tromethamine) 10 mg tablets are available in bottles of 100 and 500 tablets.

Toradol IM is available in 1 mL syringes containing 15 or 30 mg/mL of ketorolac tromethamine.

Product Monograph available on request.

REFERENCES

1. TORADOL Product Monograph, Syntex Inc., Feb. 1991. **2.** Compendium of Pharmaceuticals and Specialties, 26th Edition, 1991. **3.** Yee JP et al. *Pharmacother* 1986; 6(5):253-61. **4.** Brown CR et al. *Pharmacother* 1990; 10(6 Pt 2):45S-49S. **5.** O'Hara DA et al. *Clin Pharm Ther* 1987; 41(5)556-61. **6.** Fragen RJ. Data on File, Syntex Inc., Document CL3837, 1987. **7.** Cherry C et al. Data on File, Syntex Inc., Document CL3835, 1987. **8.** Stanski DR et al. *Pharmacother* 1990; 10(6 Pt 2) 40S-44S. **9.** Data on File, Syntex Inc., Document #90027-1, 1989. **10.** Forbes JA et al. *Pharmacother* 1990; 10(6 Pt 2): 77S-93S. **11.** Forbes JA et al. *Pharmacother* 1990; 10(6 Pt 2): 94S-105S. **12.** Mehlisch D et al., Data on File, Syntex Inc., Document CL3686. **13.** Data on File, Syntex Inc., Document #90027-3, 1989. **14.** Rooks II WH et al. *Pharmacother* 1990; 10(6 Pt 2): 30S-32S. **15.** Mangioni C et al. Data on File, Syntex Inc., Document CL4899, 1989. **16.** Hutteman W et al. Data on File, Syntex Inc., Document CL4882, 1989. **17.** Nedelman P et al. Data on File, Syntex Inc., Document CL3635, 1986. **18.** Cutting CJ et al. Data on File, Syntex Inc., Document CL4740, 1989. **19.** Diebschlag W, Nocker W, Data on File, Syntex Inc., Document CL5468, 1989. **20.** Molinie J et al. Data on File, Syntex Inc., Document CL4624, 1988. **21.** Herrera JMC et al. Data on File, Syntex Inc., Document CL4886, 1989. **22.** Bloomfield S et al. Data on File, Syntex Inc., Document CL3658, 1986. **23.** Sunshine A. Data on File, Syntex Inc., Document CL3674, 1986.

Toll-free Toradol Information Hotline: 1-800-561-5481

SYNTEX®

Syntex Inc.* Mississauga, Ont./Montréal (Qué.)
*Registered user of all ® trademarks.

PAAB CCPP MEMBER PMAC

Upjohn®

The Upjohn Company of Canada
Don Mills, Ontario

CDA Access Ads

CDA ACCESS ADS offer guaranteed* access to Canada's largest audience of dentists. To place your ad, call OLA MURPHY toll-free across the country at **(800) 661-5004**. In the Toronto calling area, please dial **(416) 278-6700.**

**If you are not satisfied with the results of your ACCESS AD, we will offer you your money back in the form of a credit for future use. Please call for more information.*

Replying to a CDA Access Box Number?
Simply write to:
CDA Access Box ___,
1382 Hurontario St.,
Mississauga, Ont. L5G 3H4.
Or you may fax your reply to (416) 278-4850, noting the appropriate box number.

Offices & Practices

BRITISH COLUMBIA - Southern: General family practice with a preventative emphasis. Independently evaluated and appraised as being unsurpassed in quality. Located in brand new office building. Dental office occupies 2,000 sq. ft. on main floor with a 2,000 sq. ft. basement. Yearly gross approximates $800,000. Could easily accommodate two hard-working dentists. Great support staff. Owner returning for postgraduate training. Please reply to CDA ACCESS Box 2526. (10/12)

BRITISH COLUMBIA - Central: Small town, great outdoors. Well established, busy, computerized general practice for sale. Excellent staff, five operatories, lab, panorex. Solo practitioner grossing $550,000 without hygienist. Selling for less than annual net. Retiring, but willing to stay on part-time to facilitate the transfer. Reply to CDA ACCESS Box 2549. (09/02)

B.C. - Vancouver Suburbs
Pediatric practice - established Ortho/Pedo practice. Tastefully decorated office with four operatories and central nitrous.
Excellent opportunity for growth.
Medi-Dent Professional Services
Have over 20 practices for sale in B.C.
For more information
— photos — or videos
Contact: Al Heaps (604) 669-9857.(06/12)

FOR INFORMATION ON B.C. DENTAL PRACTICES FOR SALE CALL
Health Pro Management Ltd.
17335 - 59th Ave,
Surrey, B.C. V3S 1N9
tel (604) 576-2866 fax(604) 576-9180

ALBERTA - Edmonton: Growing general practice for sale. Three operatories, panorex. 1,400 sq. ft., stripmall location, recent renovations. Owner relocating. Practice statistics and equipment inventory available upon request. Phone (403) 469-3250 after 6:00 p.m. (09/12)

ALBERTA - Edmonton: Busy practice for sale; 2,500 sq. ft.; six ops. (four full, two hygiene); more plumbed. Part-time associate. Owner moving. (403) 465-0995.(10/12)

ALBERTA - Calgary: Family dental practice with great potential in a new residential area. Please reply to CDA ACCESS Box 2553.(10/12)

ALBERTA - Sherwood Park: Recently established practice for sale in stripmall location, good growth potential. Please reply to CDA ACCESS Box 2560. (12/01)

ALBERTA - Claresholm: For sale three operatories, shared waiting room, dental building for lease or option to buy. Overhead is low, situated close to the foot hills, skiing mountains, Calgary, Lethbridge. In grain and ranching country with five hospitals, three schools, good golf course, swimming pool and arenas. Good opportunity for expansion. Owner wishes to retire. Phone (R) (403) 625-3245, O (403) 625-3559 or Bernie (403) 283-0323.(12/01)

SASKATCHEWAN - Saskatoon: Superb location, eight-year-old dental practice for sale, 1,600 sq. ft. of beautiful new decor, excellent income, dentist relocating. Reply to CDA ACCESS Box 2550. (09/12)

SASKATCHEWAN - Saskatoon: Dental practice for sale. Downtown long-established busy practice, excellent staff including hygienists and therapist, flexible terms. Call (306) 373-5227.(12/02)

SASKATCHEWAN: Large family practice for sale in mid-size Saskatchewan city. Several operatories, three X-rays and panelipse, low overhead and reasonable price. Please reply to CDA ACCESS Box 2557.(12/12)

ONTARIO - CALEDON
Practice For Sale
Newly renovated, 650 sq. ft., 2 operatories, dental office in plaza. **Very reasonably priced**, ideal for recent grad. Call Dr. Osuch (416) 270-8652 (Mon-Fri., 9-5). (07/12)

MAPLE - ONTARIO
20 minutes north of Toronto, three-year-old dental practice for sale. Beautifully located in a professional building in the centre of a wealthy growing community. Two ops. fully equipped and third wired. Sitting area with marble floors and t.v., low overhead, good referrals and excellent opportunity. Call Pina mornings (416) 787-5557, evenings until 10:00 & weekends (416) 737-9332. (07/12)

ONTARIO - OTTAWA
Centrally located, established adult practice with hygienist. Professionally appraised. Handsome deal for serious applicant, reply to
CDA ACCESS Box 2558. (12/01)

Relocating, Expanding, Adding Equipment, Buying or Selling a Practice? Talk to us.
For flexible financing call
1-800-661-9009
Ask for Keith Liley
HEALTHGROUP FINANCIAL
A member of the Confederation Life group of companies

To place your CDA ACCESS AD just call OLA MURPHY at (416) 278-6700 (Toronto Area) or 1-800-661-5004.

ONTARIO REGION
Growing country practice.
Located near two major towns, with excellent potential. Investment of only $95,000 enables you to start practice immediately with a cash flow. Computerized. Please reply to **CDA ACCESS Box 2552.**(10/12)

US FORTUNE 500 CO.
Expanding to Pacific Rim Countries. Extraordinary unlimited income featuring time freedom and predictable 3-5 year retirement. Often a viable supplement to your existing career.
Call Viny Dolce at (407) 969-1001 (11/13)

NOVA SCOTIA: Rural growing family dental practice, one hour from Halifax. Two fully-equipped ops., 900 sq. ft., low overhead, numerous recreational activities available. Located in economically stable growing community. Well priced. Please reply to CDA ACCESS Box 2551. (09/12)

NOVA SCOTIA - Annapolis Valley: Practice for sale in Nova Scotia Annapolis Valley. Very busy family practice, 1,200 sq. ft. office in a medical/dental professional centre. Ultramodern dental set-up, good gross, priced to sell. For more information call (902) 245-5666. (04/13)

NEWFOUNDLAND: General family practice for sale. Hospital setting, serving 10,000. Easily supports two dentists, with a potential satellite clinic. Two state-of-the-art operatories, and a third with X-ray unit. Excellent lease arrangements, owner will assist in transition. Please reply to CDA ACCESS Box 2535. (02/12)

NEW BRUNSWICK - Bathurst: Busy, established family practice for sale. Newly renovated office, 30 new patients per month with strong recall base. Owner leaving area and willing to negotiate price. Call Dr. Black at (506) 548-8331. (12/12)

CHANNEL ISLANDS - Jersey: Due to early retirement. Very high-quality single-handed private practice in new purpose-built accommodation with parking. 21-year lease available. Gross £200,000. No NHS. No death duties. No VAT. No inheritance tax. Income tax 20%. Contents and Goodwill £300,000. Dr. Anthony G. Day, Oak Farm, Rue Du Hocq., St. Clement, Jersey, Channel Islands. Phone: 0534 54988, fax: 0534 57487.(12/02)

Positions Available/Sought

LOCUM LOCATORS
can find you
A) REPLACEMENT DENTIST
B) A LOCUM TO GO TO
COLLECT (403) 791-7799.
(07/12)

ALBERTA - EDMONTON
Experienced dentist wishes to relocate his well-established practice with current 1,500 patient base. Will associate, cost-share or possibly buy-in.
Prefer **DOWNTOWN AREA,**
west end or University.
Extensive background in fixed and removable prosthodontics, implants, endodontics and cosmetic dentistry.
Contact - Robert (403) 425-9944
(EDMONTON). (11/12)

ALBERTA - Edmonton: Periodontist with well-established, progressive, busy periodontal practice is seeking another Periodontist to join him on a cost sharing or associate basis. Excellent opportunity for capable Periodontist qualified to practise in Alberta. Contact Yvette (403) 436-0108. (01/12)

ALBERTA - Calgary: Dentist looking to associate in Calgary. Full-time or part-time. Telephone (403) 246-4125. (12/01)

ALBERTA - Calgary: Locum wanted for busy Oral and Maxillofacial surgery practice in Calgary, Alberta, end of July to end of August 1993. Must be eligible for certification in Oral and Maxillofacial surgery in Alberta. Please reply to CDA ACCESS Box 2559.(12/12)

Two Attractive Opportunities in Calgary, Alberta
An expanding pediatric dental facility requires an additional pediatric dentist, and a general dentist to join as associates. (The general dentist will treat adolescents and adults, not children.) Excellent opportunities for growth and eventual equity positions.
Contact **ExperDent Consultants**
for more information:
#200 - 4161 Dawson Street, Burnaby, B.C., V5C 4B3 (604) 299-8771. (12/12)

SASKATCHEWAN - Regina: Seeking dental associate for modern office in large medical/dental facility. Good opportunity for the right person. For details call Dr. Ronald Katz, (306) 924-1494, or write to: 235B Albert Street N., Regina, Saskatchewan S4R 3C2. (08/12)

MANITOBA: Paid vacation to Hawaii for one week, for an associate willing to practice his or her skills where they are needed most. This is for a very busy modern computerized practice in Thompson, Manitoba. Willing to stay for a minimum of one year. Excellent remuneration. Present associate returning to graduate school. Please contact Judy at (204) 677-4555. (11/13)

MANITOBA - Winnipeg: Specialty practice of Oral and Maxillofacial surgery. The partners of an existing specialty practice are seeking out a

talented surgeon to add, in an associateship position, to a dynamic urban practice. All surgical facets of the specialty are currently performed. Please respond indicating your interest to CDA ACCESS Box 2556. (11/12)

Associate Wanted
Flin Flon, Manitoba
HAWAII — MEXICO — CRUISING IN THE CARIBBEAN

A two week paid vacation is part of the benefit and experience you will enjoy by working in this high gross - high income practice.
Experience life in a friendly general family practice in a small community.
Full clinical freedom.
You may choose to stay forever or return to the south after a year or more with a padded account, having practiced where you were really needed — A good feeling.
Also wanted locum for Summer of 1993.
For further details please phone collect
Dr. Malcolm T. Crozier
(204) 687-4214 office, (204) 687-5580 home, Fax (204) 687-4833. (11/12)

SASKATCHEWAN - REGINA

Associate with an intent to purchase needed for busy prevention/orientated family practice in bustling mall location. Ideal for new grad or dentist prepared to build his/her patient pool prior to purchase. My six-year-old practice is computerized, fully-equipped and well staffed. There are four ops., pan and room to expand to our combined needs. Phone **Dr. Kevin Soltys (306) 789-5959 or (306) 584-0385.** *Or write:*
Victoria Square Dental
142-2223 Victoria Ave. E.
Regina, Saskatchewan S4N 6E4. (12/01)

ASSOCIATE PARTNER

Unique opportunity for qualified Oral & Maxillofacial Surgeon. Well established practice, population drawing area of 200,000, exceptional hospital privileges at three hospitals, full-scope hospital and office practice. **Location Thunder Bay, Ontario, Canada. Call (807) 344-3973, fax (807) 345-3395.** (10/12)

Oral Maxillofacial Surgeon

with fellowship to The Royal College and experience in trauma and orthognathic surgery wishes an associateship with an existing O.M.F.S. practice in Ontario or Prairie provinces. Please reply with telephone # to **CDA ACCESS Box 2546.** (11/01)

ONTARIO - HAMILTON

Busy city center practice needs experienced, mature associate looking for long-term relationship/partnership. Unlimited potential for someone who is willing to work hard. Please reply to **CDA ACCESS Box 2557.** (12/01)

ONTARIO: Kingston/Belleville suburb population of 3,000 plus. Associate required, a good opportunity if you only want to work three days per week or more. Please call Madeleine at (613) 748-0633 between 9 a.m. & 6 p.m. (11/01)

ONTARIO - Windsor: Ambitious experienced associate wanted for long-term to join two dentists in a busy general practice. Has to be well trained in all aspects of dentistry, second language, oriental, for example, is an asset. Send resume with photo to CDA ACCESS Box 2555. (11/01)

ONTARIO - Windsor: Associate required to assume an established full-time position in a busy dental practice. Present associate relocating in January of 1993. For more information on this unique opportunity please reply to CDA ACCESS Box 2554. (11/12)

NEW BRUNSWICK - Moncton: Associate required immediately for preventive orientated family practice. Practice situated in a modern medical building. Opportunity also exists for cost-sharing or partnership arrangements. Owners require time away from the practice periodically to pursue other professional interests. Please contact Dr. Fenton Smyth (506) 857-4067 or (506) 383-9032. (11/12)

YUKON - Whitehorse: Hygienist (permanent or locum) required immediately in busy six-operatory practice in community of 23,000. Experience preferred, but new graduates welcome. Salary is $30 to $35 hour doe. We will provide relocation assistance and aid in locating accommodation. Whitehorse is a modern city located in the unspoilt north. It is the fastest growing city in Canada with numerous opportunities to become involved in the arts, sports and the outdoors. Please fax resume to (403) 668-5121 and call (403) 668-6707. (08/12)

POSITION AVAILABLE

The Faculty of Dentistry, Dalhousie University, Halifax, Nova Scotia is seeking applications for a full-time, tenure-track, faculty position in the Division of Pediatric Dentistry. Responsibilities include serving as Division Head, undergraduate didactic teaching, clinical and preclinical teaching, and research activity, with preference given to those with an interest and/or history of clinical research.
Applicants must be certified specialists in Pediatric Dentistry with a M.S., or preferably a Ph.D. degree, and be eligible for certification by the Royal College of Dentists. Eligibility for licensure to practise pediatric dentistry in the Province of Nova Scotia is required. Applicants must have graduated from an accredited North American dental program.
Salary and rank will be commensurate with experience. Two half-days per week of extramural practice privilege are available.
Dalhousie University is an Employment Equity/Affirmative Action Employer. The University encourages applications from qualified women, aboriginal peoples, visible minorities, and persons with disabilities.
In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.
Applicants will be received until February 26, 1993. Qualified candidates may submit their letter of application, a curriculum vitae, and the names and addresses of three references to:

Dr. Amid I. Ismail
Chair, Department of Pediatric and Community Dentistry
Faculty of Dentistry
Dalhousie University
Halifax, Nova Scotia B3H 3J5

POSITION AVAILABLE

The Faculty of Dentistry, Dalhousie University, Halifax, Nova Scotia, is seeking applications for a full-time, tenure-track, faculty position in the Division of Orthodontics. Responsibilities include undergraduate didactic teaching, clinical and preclinical teaching, and research activity.

Applicants must be certified specialists in Orthodontics with a M.S., or preferably a Ph. D. degree, and be eligible for certification by the Royal College of Dentists or the American Board of Orthodontics. Preference will be given to those with a strong record in clinical research.

Salary and rank will be commensurate with experience. Two half-days per week of extramural practice privilege are available.

Dalhousie University is an Employment Equity/Affirmative Action Employer. The University encourages applications from qualified women, aboriginal peoples, visible minorities, and persons with disabilities.

In accordance with Canadian immigration requirements, preference will be given to Canadian citizens and permanent residents. Non-Canadians are encouraged to apply.

Applications will be received until February 26, 1993. Qualified candidates may submit their letter of application, with their curriculum vitae and the names and addresses of three references to:

Dr. William K. Lobb
Head, Division of Orthodontics
Department of Pediatric and Community Dentistry
Faculty of Dentistry
Dalhousie University
Halifax, Nova Scotia B3H 3J5

ONTARIO - Wawa: For sale. A Dentsply duo vacuum system. Call (705) 856-2424. (11/12)

ONTARIO - Almonte: For sale Rocky Mountain 660 Spot Welder with all soldering attachments. Scarcely used, $900. Please call (613) 256-1553. (12/12)

BELMONT
X-RAY HEAD SERVICE
1 year guarantee
NATIONAL SERVICE CTR.
190 N.W. 3rd Street
Hallandale, Florida 33020
Toll Free **800-377-6770**

SIEMENS
X-RAY HEAD SERVICE
2 years guarantee
NATIONAL SERVICE CTR.
190 N.W. 3rd Street
Hallandale, Florida 33020
Toll Free **800-377-6770**

To place your ACCESS AD call OLA MURPHY at 1-800-661-5004, in the Toronto area dial (416) 278-6700.

YUKON - Whitehorse: Associate wanted. Full-time or locum needed in a very busy, bright, well-staffed, friendly, six-operatory practice in booming downtown Whitehorse. Ideal opportunity for motivated, hard-working, cheerful individual who wants the best of both worlds - busy patient flow and the beautiful outdoors (skiing, hiking, camping, canoeing, etc.) Serious applicants please, fax resume (403) 668-5121, and call (403) 668-6707. (08/12)

Equipment Sales, Service

ALBERTA: For sale. Spaceline for D. Dental Unit includes: chair, light, tray, X-ray, built-in ultrasonic scalar, two high-speed handpieces (handpieces included, one fiber-optic), one slow-speed handpiece (handpiece included), high-volume suction, saliva ejector and cuspidor. Brand new, asking $20,000. Contact: (403) 657-3456 (B), (403) 657-3409 (R).(12/12)

DANSEREAU HEALTH PRODUCTS
CLINIC II

California Chair
All electric, auto return. Reversible cushions, choice of 30 colors.
Delivery System
3-Handpiece automatic foot control, air lock arm, stainless steel tray, 3-Way syringe, X-ray view box.
Assistants Package
HVE, saliva ejector, 3-way syringe, cuspidor, manual cup filler, quick disconnect, J-box with controls for easy installation.
Light
Chair mounted light, post plate and cup.

Retail $5,325. With Cash Discount $3,995.
We accept Visa & Matercard.
All prices FOB factory Ahaheim.
Manufacturer direct sales for 31 years.

DANSEREAU HEALTH PRODUCTS
559 S. Rose Street
Anaheim, CA 92805
(714) 776-5357
(800) 423-5657 (USA & Canada)
FAX (714) 776-4652 (04/12)

Vacation Rentals

BRITISH COLUMBIA - Whistler: Luxury three bedroom, two bathroom condo at base of Blackcomb, sleeps two - eight; two kings, two twins, one queen, six appliances, TV, VCR, 75-yard walk, then ski to lifts. Call (519) 886-8980 Dr. Clarke. (09/12)

NEAR BANFF IN PICTURESQUE CANMORE
close to world class skiing of Sunshine, Lake Louise and Mount Allen.
Luxury, fully-equipped townhouse, sleeps six, weekly rental.
Dr. Martin Nash (416) 229-6416. (12/12)

LONDON FLATS
for your London stay. Consider our London flats near the Chelsea Bridge/Battersea Park. Elegantly furnished, centrally located with a 2-hour maid service, Monday through Friday. Flat 18 accommodates five people in three bedrooms with bath/shower and fully equipped kitchen. Flat 16 accommodates three people in two bedrooms, bathroom/shower, lovely lounge and dining room and fully-equipped kitchen. Can arrange theatre tickets. Contact evenings for brochure: **Mr. Thomas Moore, Telephone: (801) 393-9120, Fax: (801) 393-3024; or P.O. Box 12086, Ogden, Utah 84412 U.S.A.** (10/12)

UNITED KINGDOM: British dentist wishes to hear from a Vancouver based colleague interested in exchanging a three-bedroom house plus large garden and use of two cars, in Hampshire village for similar property for three weeks summer 1993. Tel: 0264 75400 UK eves/w.e. or 0264 354312 practice Mr. Wray.(12/12)

Meetings & Announcements

FEBRUARY 20 - 22 1993
2nd ANNUAL WHISTLER DENTAL SEMINAR
Delta Mountain Inn, Whistler, B.C.
For information contact Vancouver Chapter of Alpha Omega Fraternity
Louise Huber (604) 278-9877. (11/01)

Canadian Straight Wire & Functional Orthodontic Program
will be offering to hygienists, staff and assistance a course in Orthodontics and Cephalometric Tracing. January 15, 16, 17 1993.
Venture Inn,
Burlington On The Lake.
$390 Plus GST.
Contact: **M. Yardley c/o C.F.W. & F.O.P., P.O. Box 986, Simcoe, Ont. N3Y 1B8 (519) 426-9140** (12/12)

CDA ACCESS now offers ATTENTION GRABBAERS!

For a low additional cost, you can spruce up your classified notices with special eye-catching typography and art.
Call Ola Murphy at (800) 661-5004 or (416) 278-6700 for information about this exclusive CDA ACCESS feature.

Miscellaneous

U.S.A. IMMIGRATION LAW

William Newell Siebert,
Attorney at Law.
307 North Michigan Avenue,
Suite 915, Chicago, Illinois 60601
312-329-0646

Practice limited to U.S. Immigration Law Since 1969 (10/12)

At last you have a better way to access the dental marketplace. Call OLA MURPHY to place your CDA ACCESS AD.

POSITIVE ANARCHY RULES AS BIKERS TAKE OVER.

All across the country, motorcyclists gather for their annual ride for charity. Proceeds from their ride go towards helping people all across Canada. This event is part of a movement that's helping change the world. One simple act at a time.

IMAGINE

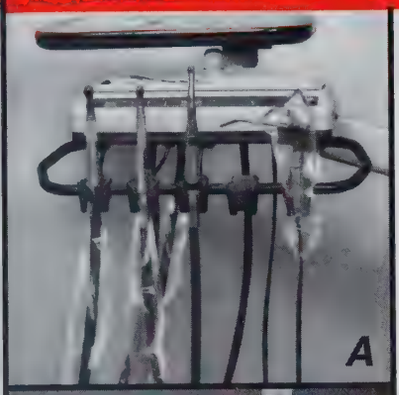
IMAGINE THE DIFFERENCE YOU COULD MAKE WITH YOUR ACTS OF GIVING AND VOLUNTEERING

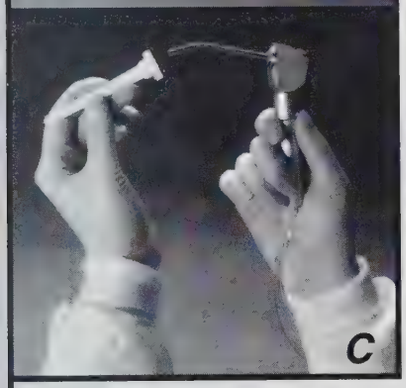
Advertisers' Index

A Dec 971
Ash Temple 960
Bisco Dental 982
Braun 981
CDA Access 1,024
CDA Dental Meeting Cassettes... 963
CDA DIS 1,016
CDA Membership 1,006, 1,007
CDA Merchandise 1,012, 1,013
CDAnet 1004
CDA RSP 984
CDA Seminars 976
CDSPI 975, 1011
Dentsply ..... IFC
ESPE Premier Dental ..... OBC
Goodman & Carr 973
Hoechst 969, 980
3M Canada/Riker 966, 988
Palmero Dental ..... IBC
Syntex 986, 987, 1,033

5633

PALCO BARRIER PRODUCTS





A. PALCO DISPOSABLE TUBE PROTECTORS
Code #1912 – 2¼" & #1913 – 4" **1200' roll**

- PALCO DISP. WATER/AIR SYRINGE PROTECTORS
  Code #1915 – 3"x 10" **box of 500**

B. PALCO DISP. X-RAY HEAD PROTECTORS
Code #1910 – Size 15"x 26"
box of 225
Code #1910B – 28"x 23" **roll of 225**

C. PALCO SYRINGE TIP COVER
Code #1950 **bag of 100**

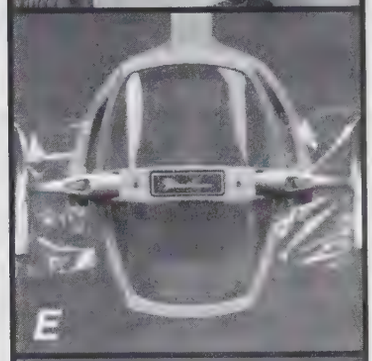
D. PALCO BARRIER FILMS

Clear #1803C – 4"x6 "	**1200 sheets per roll**
Blue #1803B – 4"x 6"	**1200 sheets per roll**
Clear #1865C – 2 ½"x 6"	**1200 sheets per roll**
Clear #1866C – 6"x 9"	**800 sheets per roll**
Clear #1867C – 12"x 14"	**514 sheets per roll**

- Ask about our interchangeable White Wall-Mounted or Desk-Top Dispenser.
  (Fits 2 ½" x 6" and 4" x 6" Rolls Only) Code #1855

E. PALCO DISPOSABLE T-LIGHT HANDLE PROTECTORS
Code #1914 – 5¾"x 4¼" **box of 500**

F. PALCO DISPOSABLE TRAY PROTECTORS



OTHER BARRIERS NOT PICTURED

Six Sizes to Fit All Trays **Call for Sizes and Price**

PALCO DISP. FULL CHAIR PROTECTORS
Code #1902 Size 40"x 85" **roll of 175 sheets**

PALCO FULL CHAIR PROTECTOR DISPENSER
Code #1860
Size 21 ½"x 8"x 8"

PALCO DISPOSABLE HALF CHAIR PROTECTORS
Code #1901
Size 14"x 13¾"x 23" **roll of 225**

PALCO DISP. PEN/PENCIL PROTECTORS
Code #1917 – Size ½"x 6" **box of 1000**

PALCO DISPOSABLE BITE BLOCK COVERS
Code # 1850 – 1"x 2" **box of 1000**

PALCO DISPOSABLE DELIVERY SYSTEM PROTECTORS
Code #1911A – 19"x 19" **roll of 500**
Code #1911 – 21"x 21" **roll of 500**

PALCO DISPOSABLE X-RAY FILM PROTECTORS
Code #1916 – 2"x 2" **box of 500**

PALCO DISPOSABLE PATIENT PROTECTORS
Code #1903 – 36"x 48" **roll of 300**

PALCO DISP. HEADREST PROTECTORS

Palmero Dental Mfg./Sales Co.

FREE SAMPLES AND CATALOGS AVAILABLE

CALL TOLL FREE 1-800-344-6424

The Proven[1-4] Core Material.

KETAC®-SILVER BONDS TO THE TOOTH, RELEASES FLUORIDE AND SETS IN ONLY THREE MINUTES.

APLICAP® MAXICAP®

Choose Aplicap or Maxicap. Maxicap contains four times the material of an Aplicap.

EASY TO USE

1 *PRE-OP: At least 2/3 of coronal structure must remain to ensure a strong unitary core.*

2 *Apply KETAC-SILVER directly into the matrix and apply pressure.*

3 *After only three minutes KETAC-SILVER trims easily. The final restoration is thoroughly bonded and releases fluoride.*

Technique courtesy of David O. Maltz, D.M.D.

Years of research support the clinical success of this patented formulation of pure silver and glass ionomer[1]. ESPE® KETAC-SILVER offers you a proven chemical bond[2] to the tooth - without undercuts - and mechanical attachment to pins and posts. The result is a strong unitary radiopaque core with a tight marginal seal and fluoride release[3].

You don't have to settle for composites which do not chemically bond, nor should you settle for amalgam which contains mercury and requires 24 hours to fully set. Choose KETAC-SILVER for convenience and your patients' dental health.

KETAC-SILVER Aplicap or Maxicap introductory packages - available through your dealer - come with appropriate capsule activator and applier. CHELON®-SILVER is a hand-mixed version of KETAC-SILVER.

1 "Cermet Cements," McLean, John W., JADA, Vol. 120, January 1990. 2 "Adhesion Of Glass Ionomer Cement In The Clinical Environment," Mount, G.J., Operative Dentistry, 1991, 16; 141-8. 3 " Restorative Materials Containing Fluoride," Council On Dental Materials, Instruments & Equipment, JADA, Vol. 116, May 1988. 4 Full bibliography available upon request.

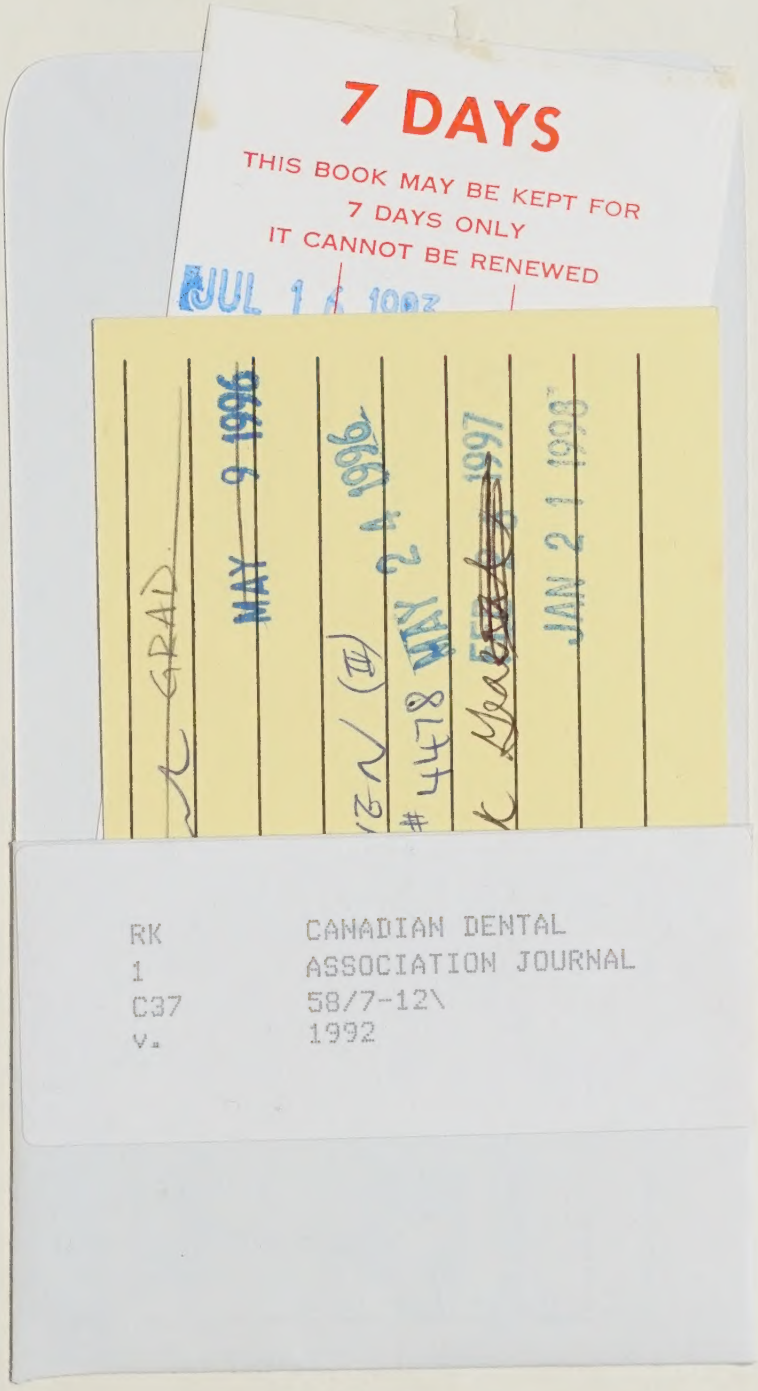
® ESPE, KETAC-SILVER, CHELON-SILVER, APLICAP and MAXICAP are registered trademarks of ESPE, GmBh, Germany. ©1992

ESPE-Premier Sales Co., Box 111, Norristown, PA 19404 • 1-800-344-8235
ESPE-Premier (Canada), Inc., 480 Hood Rd., Unit #3, Markham, Ontario, Canada L3R 9Z3 • 1-800-465-8455

KETAC®-SILVER...
For Your Patients' Dental Health.

ESPE-premier

JUN 1 6 1993


7 DAYS
THIS BOOK MAY BE KEPT FOR
7 DAYS ONLY
IT CANNOT BE RENEWED
JUL 1 6 1992
GRAD
MAY 9 1996
4 2 1996
#4478 MAY
JAN 2 1 1998
RK
1
C37
v.
CANADIAN DENTAL
ASSOCIATION JOURNAL
58/7-12\
1992